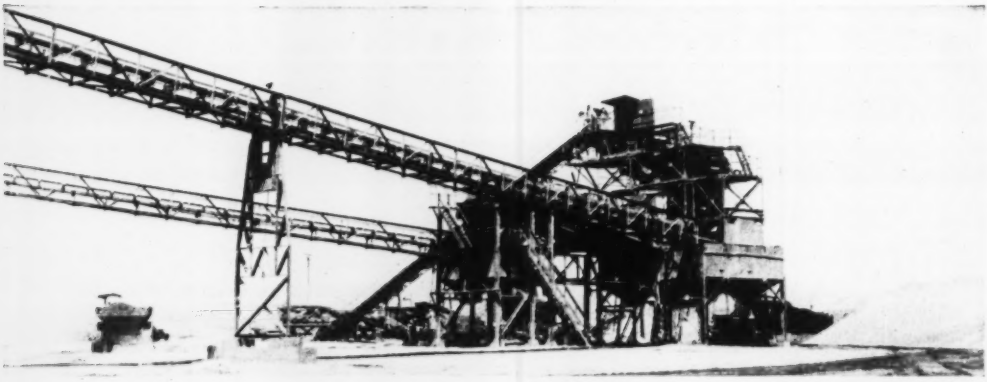
ENGINEERING NEWS-RECORD

A McGRAW HILL PUBLICATION



(A) Gravel is processed, and dirt and silt are screened and removed from sand in this washing and classifying plant. From here, the sand and gravel are carried by conveyors to storage piles. Extensive use is made of electric-powered conveyors to provide economical and reliable transportation. G-E motors and control are used throughout the portable arrangement.

ON JOB AFTER JOB

portable plant makes aggregate

... Electrically

G-E Equipment Powers 245-Tons-per-hour Plant to Process Aggregate Wherever It Is Needed.

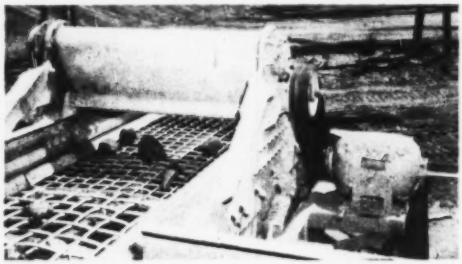
This portable aggregate and batch plant has now been operated by the Western Contracting Corp. on four projects. Shown here set up near Newman, Calif., to supply aggregate for the Delta-Mendota irrigation canal, the plant has recently been moved to Yuma, Ariz., to do a similar job for the Welton-Mohawk canal. In 1946 the plant was moved 20 miles to the Newman site, set up, and put in operation in 10 days.

General Electric co-ordinated motors and control are used throughout. They give plant operators accurate control of the process, and have cut outages to a minimum. Motors range from 7½-hp G-E Pacific gear-motors driving conveyor belts to a 150-hp rock crusher motor. A 75-hp vertical motor drives a deepwell pump to supply the plant with water.

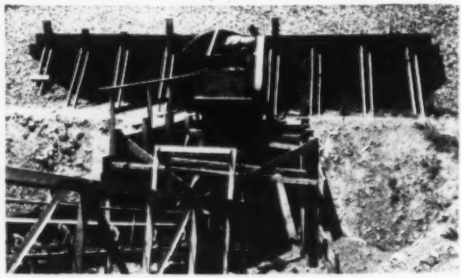
Electrified construction equipment can pay off for you, too. With co-ordinated use of G-E motors and control and G-E power distribution systems you will get safer, more flexible, and more efficient operation. *General Electric Company, Schenectady 5, N. Y.*

Ask him Today!

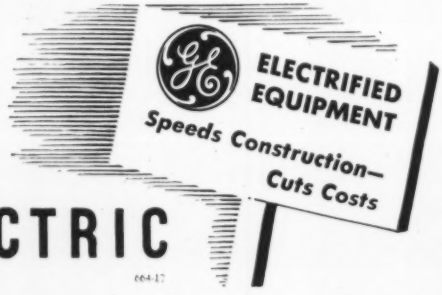
Whether you buy or build construction equipment, your G-E representative can show you how to do a better job—at lower cost—by complete electrification. Write him now, and he'll call on you at your convenience.



(B) Oversize rocks are removed by this scalping screen at the beginning of the conveyor system. A G-E 20-hp motor operates the screen. Maximum flow of material to the screen comes from an apron feeder operated by a G-E variable speed motor remotely controlled with a rheostat by the operator at the top of the washing plant.

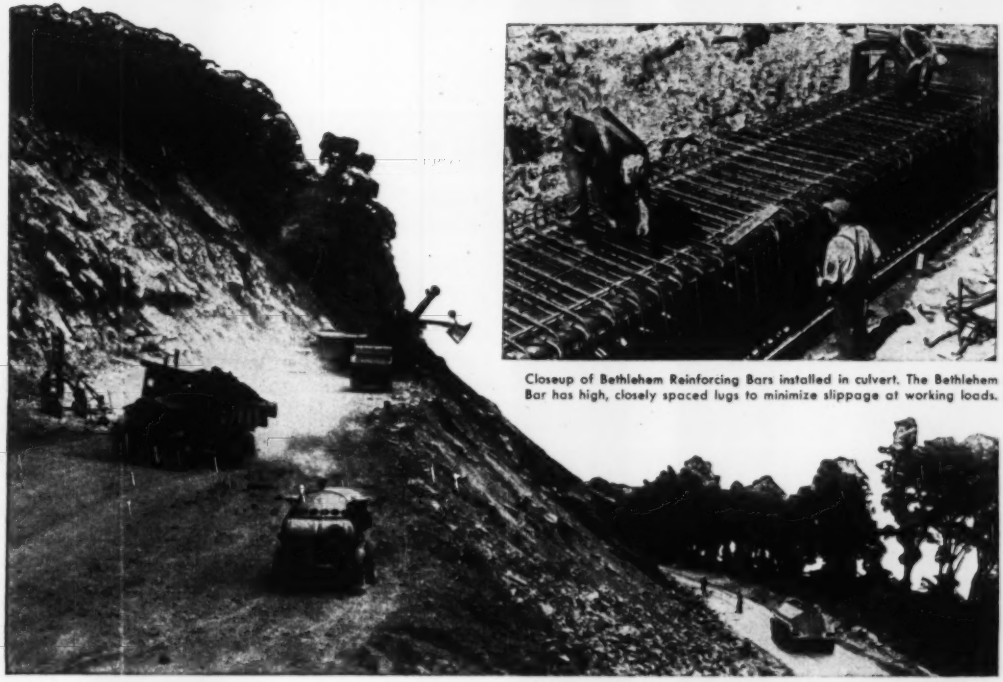


(C) Gravel is drawn from the storage pile by a conveyor powered by a 10-hp G-E Pacific adjustable-speed gear-motor. This drive permits low adjustable speeds, easily changed by a pilot motor which is controlled from the top of the washing plant.



GENERAL ELECTRIC

664-17

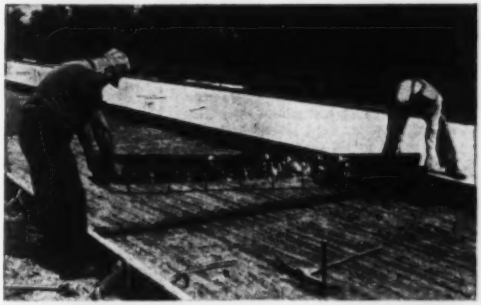


Closeup of Bethlehem Reinforcing Bars installed in culvert. The Bethlehem Bar has high, closely spaced lugs to minimize slippage at working loads.

Drill steel and wire rope get a real workout during early stages of rough grading. Job required about 750,000 cu yd of excavation and fill.

8 Miles of Relocation on U.S. 15

Eight miles of U.S. Route 15, between Liverpool and Amity Hall, Pa., was recently relocated under a project authorized by the Pennsylvania Department of Highways. The new 4-lane divided highway is free of sharp curves and steep grades. Its construction included the erection of 12 small bridges or culverts, as well as extensions for two existing structures. Contractor for the project was John H. Swanger, Inc., Lancaster, Pa. Bethlehem furnished bridge reinforcing, dowel units, bar mats and guard rail.



Two men can handle Bethlehem Dowel Unit with ease. The unit holds dowels in accurate alignment in concrete slabs, both horizontally and vertically.

Bethlehem Dowel Units nest conveniently, take little space at Swanger's batching plant. Assembled units in foreground are ready for installation.

BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.

On the Pacific Coast Bethlehem products are sold by Bethlehem Pacific Coast Steel Corporation
Export Distributor: Bethlehem Steel Export Corporation

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Dowel Units • Reinforcing Bars • Bar Mats • Guard Rail
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ENGINEERING NEWS-RECORD

ABP Member ABC

Volume 147 JULY 12, 1951 No. 2

WALDO G. BOWMAN
Editor

FEATURES IN THIS ISSUE

Record-size rigid frames . . . . . R. E. Coblentz 28

Bethlehem moves first Venezuelan iron ore 35

Survey finds Lake Erie foul 39

New Marine Corps hangar is open and shut case 42

Perspective—Contractors do some worrying 120

DEPARTMENTS

Construction Week	17	Men and Jobs	55
Construction Trends	19	Education, Research	59
Editorials	21	Meetings	62
News of the Week	23	Obituaries	65
Legal Decisions	32	Labor	67
Book Reviews	43	Construction Business	70
Reader Comment	46	Unit Prices	74
Municipal	48	Construction Reports	77
Foreign	52	New Products	112

Number of copies of this issue printed 48,042

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Domestic News Bureaus—Atlanta, Chicago, Cleveland, Detroit, Houston, Los Angeles, San Francisco, Washington. Correspondents in 71 cities in the United States, Canada and Mexico.
Foreign News Bureaus—London, Frankfurt, Paris, Moscow, Tokyo, Bombay, Melbourne, Rio de Janeiro, Mexico City. *Correspondents*—Athens, Rome, Caracas, Buenos Aires, Santiago, Shanghai, Zurich, Johannesburg and 40 other cities.

ROBERT F. BOGER
Publisher

July 12, 1951 ENGINEERING NEWS-RECORD Vol. 147—No. 2

Member ABC and ABP

Published weekly by McGraw-Hill Publishing Company, Inc., James H. McGraw (1860-1948), Founder. **Publication Office, 99-129 North Broadway, Albany 1, N. Y.**

Executive, Editorial and Advertising Offices: McGraw-Hill Building, 330 W. 42nd St., N. Y. 18, N. Y. Curtis W. McGraw, President; Willard Chevalier, Executive Vice-President; Joseph A. Gerardi, Vice-President and Treasurer; John J. Cooke, Secretary; Paul Montgomery, Senior Vice-President, Publications Division; Ralph B. Smith, Editorial Director; Nelson Bond, Vice-President and Director of Advertising; J. E. Blackburn, Jr., Vice-President and Director of Circulation.

Subscriptions: Address correspondence to Engineering News-Record—Subscription Service, 99-129 N. Broadway, Albany 1, N. Y., or 330 W. 42nd St., New York 18, N. Y. Allow ten days for change of address.

Please indicate position and company connection on all subscription orders.

Single copies 35¢. Subscription rates—United States and possessions, $6.00 a year; $9.00 for two years; $12.00 for three years. Canada, $8.00 a year; $12.00 for two years; $16.00 for three years. Pan American countries, $15.00 a year; $25.00 for two years; $30.00 for three years. All other countries $20.00 a year; $30.00 for two years; $40.00 for three years. Entered as second class matter October 29, 1936, at the Post Office at Albany, N. Y., under Act of Mar. 3, 1879. Printed in U. S. A. Copyright 1951 by McGraw-Hill Publishing Co., Inc.—All Rights Reserved.

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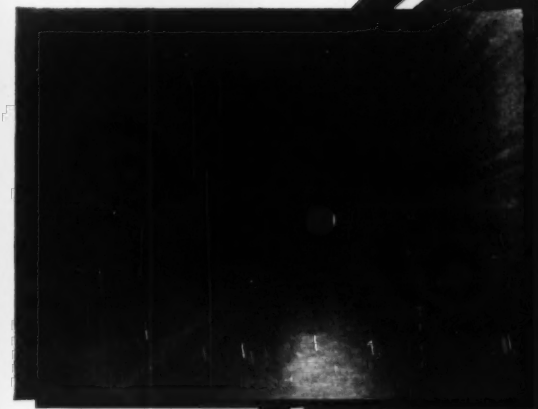
at much less than new pipe line costs!



Old pipe reconditioned by cement mortar lining.

FOR WATER, GAS AND OIL PIPE LINES OF 4" DIA. AND UP

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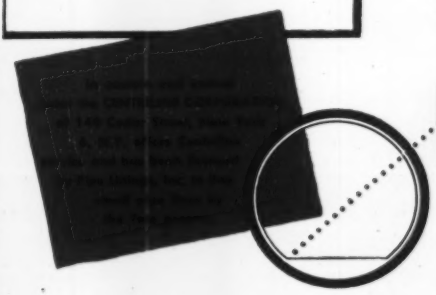

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When we say "exactly fitted" we mean a construction tire built for the toughest conditions OFF THE ROAD, while giving a smooth long-wearing roll on the highway.

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Guarantees—ACTUAL TEST ON THE JOB—FULL SATISFACTION...NO OBLIGATION. The outstanding policy of FREE TRIAL has been in effect since Clipper invented the world's first masonry saw years ago. Try it now!

NINE MODELS TO CHOOSE FROM PRICED FROM $265.00

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Any Material ...On Any Size Job

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AUTOMATIC BLADE PRESSURE | SELECT-A-NOTCH | SAVE-A-BLADE DIAL | ADJUST-A-CUT CONTROL

1. Makes your blades last longer... Because Equalizer Spring automatically cushions blade pressure whether cutting HARD or SOFT materials. Outstanding for blade economy.
2. One man easily adjusts Cutting Head to desired height... Whether cutting 12" or 1" material. Operator's hands merely guide. Weight supported by rear Bar.
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May 21, 1951

Mr. Larry G. Kelley
Moretrench Corporation
4900 South Austin Avenue
Chicago 38, Illinois

Dear Larry:

Here is a picture of Hutsonville which I thought would be a damn good advertisement for you - dry hole - river up.

Regards,

PCP:EP
Enclosure

Thanks Mr. Peterson, it is!

Power Plant on the Wabash River at Hutsonville, Illinois

Normal water level	444
River stage	447
Caissons' subgrade	433

MATERIAL: Coarse sand, gravel and silt, with shale rock at subgrade.

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"EUCS" Rush Road To Hydrogen Bomb Plant

Construction of a four-lane highway 24 miles long—an access road to a Hydrogen Bomb Plant site in South Carolina—is another rush project where Euclid speed, capacity and dependability paid off.

Fourteen Bottom-Dump "Eucs" of 13 cu. yd. struck capacity and a Euclid Loader enabled contractor R. B. Potashnick to complete this big earth moving job ahead of schedule. Seven of the Bottom-Dumps were used under the Loader; the remaining "Eucs" were loaded by 3½ yd. and 2½ yd. draglines. Some of the units were equipped with top extensions to accommodate heaping loads of 16 and 18 cu. yds.

The job required moving 1,925,000 cu. yds. of sand and clay on hauls averaging 900 feet, up six per cent grades. Euclid staying power and continuous operation were important factors in getting the job done on time.

Your Euclid Distributor will be glad to provide helpful information and discuss your present or future earth moving requirements.

The EUCLID ROAD MACHINERY CO.
CLEVELAND 17, OHIO

CABLE ADDRESS: YUKLID CODE: BENTLEY

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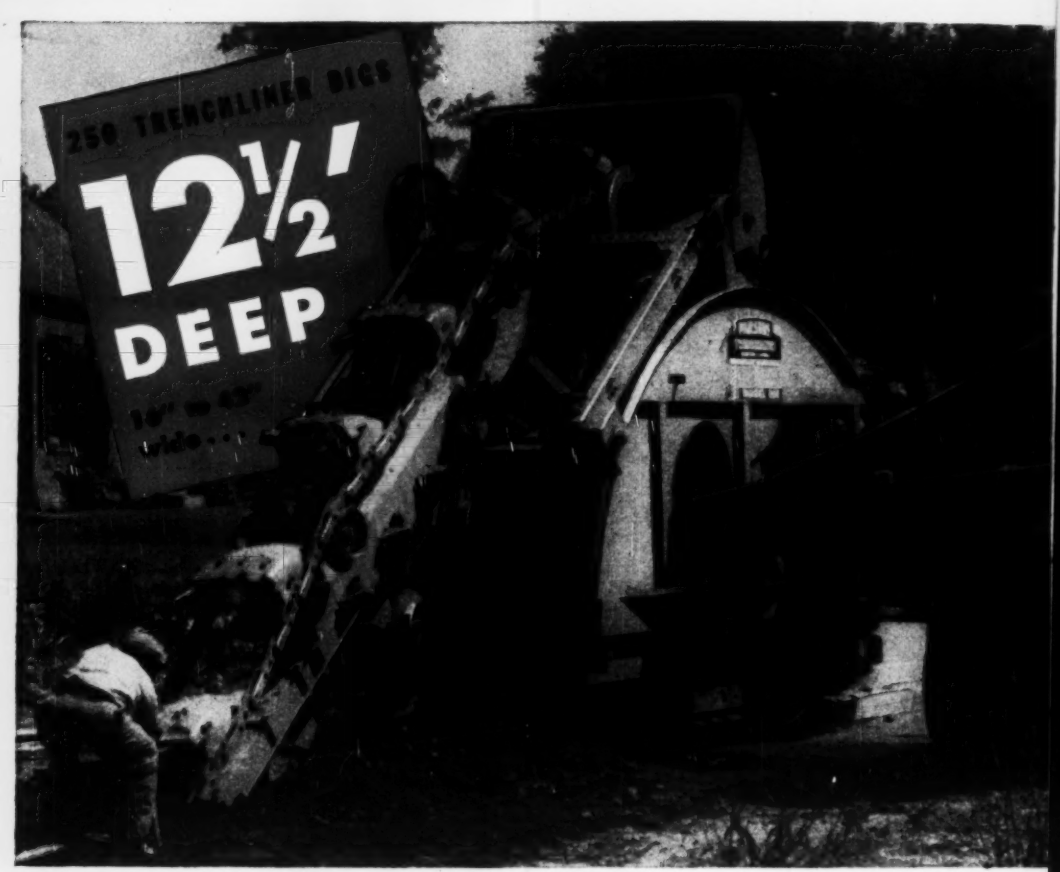


- **loads trucks**
- **hugs curbs**
- **dodges poles**
- **makes vertical set-ins**
- **undercuts sidewalks**

COMBINING big work capacity with extreme flexibility, Parsons heavy-duty 250 Trenchliner digs 16" to 42" wide, up to 12½ feet deep. 30 digging feeds from 3.8" to 9¾ feet per minute assure maximum trench production at every depth, width, in all kinds of soils. Buckets and side-cutters are equipped with easy-in, easy-out "Tap-In" teeth. With full reverse of all operations, sloping ladder boom makes vertical set-ins, flush with foundations, against building walls . . . or undercuts sidewalks, sewers and old mains.

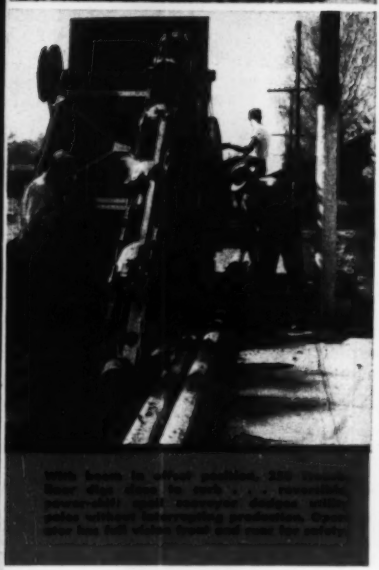
Flexibility is further increased because shiftable boom cuts within 11" of side obstructions . . . digs as efficiently behind either crawler as it does in center position. Spoil conveyor shifts completely through machine by power in less than 1 min. to dodge poles and buildings without swerving from grade line . . . belt direction is instantly reversible to dump right or left. Arc of conveyor gives low-level, close-to-trench deposit . . . or reaches up to 6'-8" (8'-8" with extension section) for loading into trucks. Discharge height remains constant, regardless of digging boom position.

To check on the 250 Trenchliner's many heavy-duty mechanical features, contact your Parsons distributor, or write for bulletin. Other sizes in Parsons line include larger and smaller ladder-type models, and a wheel Trenchliner.

PARSONS RIGHT ONE JEHRING PRODUCT

PARSONS *Trenchliners*

PARSONS COMPANY, NEWTON, IOWA (Founding Subsidiary)



Saving important seconds on every batch of concrete, tilted Flow-Line Discharge Chute pours full 12.1 cu. ft. batch in 7 seconds. Kwik-Mix 11-S also has exclusive Dandie® blade-and-bucket drum that double-mixes every batch at no increase in mixing time. It's available with side or end discharge, 2 or 4 wheels, and special tower for loading trucks. Other sizes: 3½-S to 16-S. Your Kwik-Mix distributor has complete facts.

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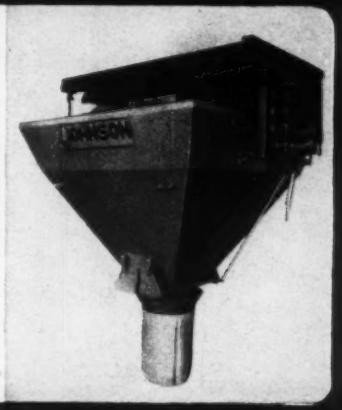
. . . are "Hi-Speed" because extra wide, 15"x36", fill valves and wide bin top openings reduce charging time . . . steep side slopes give fast, clean discharge. Standard batcher handles 34-E paver batch. For charging truck mixers, 4 material "Hi-Speed" Batcher can be furnished with 2, 3 or 4-yd. weigh hoppers having double clam discharge gate and collector ring. Also check the complete Johnson line of mix plants, bins, buckets and silos.

C. S. JOHNSON *(Koehring Subsidiary)*
Champaign, Ill.



With plenty of weight stability, Koehring 2½-yard 1005 holds solidly when digging into heavy rock banks. Standard boom is 26-ft. long . . . double dipper sticks, 19½ ft. For stripping, special 50-ft. shovel boom gives a maximum reach digging radius of 67 ft. As a heavy-duty crane, Koehring 1005 safely lifts up to 79½ tons . . . quickly converts to dragline or clamshell. For more information, call your Koehring distributor or write.

KOEHRING COMPANY
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W63

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This group of dependable Marlow Self-Priming Centrifugal pumps helped Fuller-Turner-Walsh-Slattery construction companies keep huge United Nations building project on schedule. Experienced construction men everywhere avoid trouble and protect profits with the pumps that can't be beat for staying power . . . MARLOW pumps.

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Write for information and name of nearest dealer

MARLOW PUMPS

510 GREENWOOD AVENUE • RIDGEWOOD, N. J.

Manufacturers of the World's Most Complete Line of Construction Pumps

NEWS BRIEFS

• **Big blast**—It took a 525-lb charge of dynamite to blow out the 750-ton doors of the big blimp hangar at the South Weymouth, Mass., Naval Air Station recently. A first blast a few days before failed to move the massive concrete and steel doors of the 1090-ft hangar built in 1942 at a cost of $4,000,000 and now being razed to make room for a jet plane runway. Naval officials said the steel and other materials, including 2,000,000 ft of lumber, will be salvaged for use in other projects.

• **Air raid protection for schools**—The Bremerton, Wash., school board has decided to incorporate air raid protection into a new elementary school planned for construction this summer and probably also in the case of all future school construction. The addition of a reinforced concrete slab over corridors is intended to protect youngsters from flying debris and glass. This will mean an estimated additional cost of $220 per classroom or about $7 a student. Designs previously had called for concrete floors and reinforced concrete walls. The Navy has a large installation at Bremerton.

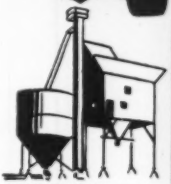
• **Extensive Canadian surveys**—About 150,000 more square miles of Canada will be surveyed in detail this year by field parties of the Dominion's Department of Mines and Technical Surveys, now starting its work. Following the aerial survey work completed by the Royal Canadian Air Force, 63 crews have been assigned to topographical survey work. Seven helicopters will be used in mountainous regions. Nineteen parties will be engaged upon geodetic work and thirteen on legal boundary surveys. Six ships of the Department's hydrographic branch will carry out charting on the West Coast and the coasts of Newfoundland and Labrador, as well as in far northern waters. Shoran (radar method) will be used as an aid to survey work in the western part of the Northwest Territories, permitting the measurement of distances up to 300 miles between control points with a high degree of accuracy.

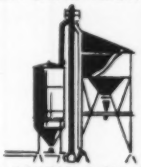
• **Extra water for Santa Barbara**—The city of Santa Barbara, Calif., and the Montecito Water District have entered into an agreement to finance construction of a pipeline at an estimated cost of $110,000 to bring some 3,000,000 gal. of water daily from Tecolote Tunnel. The tunnel water is the lucky by-product of the boring

BUILDS IT BETTER

GEARED TO YOUR PRODUCTION NEEDS

Engineered FOR THE JOB


STATIONARY BATCHING PLANTS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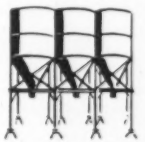
PORTABLE AGGREGATE PLANTS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BELT CONVEYORS

BUCKET ELEVATORS

STEEL FORMS

CURB & GUTTER
AIRPORT-HIGHWAY
SPECIAL FORMS

CONCRETE BUCKETS

• Heltzel-engineered equipment provides that element of efficiency so important when man hours count highly. Each product in the Heltzel line is backed by 40 years experience in the concrete industry. Contractors and concrete producers know that Heltzel builds quality, high performance equipment. It stands the test of time and rugged operating conditions. Some of the Heltzel line of products are pictured here.

Specific information on any Heltzel equipment may be had by writing to our Warren office or contacting your nearest Heltzel distributor.

HELTZEL

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WARREN, OHIO

Bridge over the Mississippi River, Hastings, Minnesota, 2600 tons fabricated and erected.

built by down-to-earth methods

saves you money, saves you time!

3 HUGE FABRICATING PLANTS OPERATE AS A UNIT

- Clinton Bridge Corporation
- Gage Structural Steel Corporation
- Midland Structural Steel Corporation

The bridge you see here in the course of construction is over the mighty Mississippi River at Hastings, Minnesota.

Have you noticed what's different about the erecting technique? Sure you have . . . it's the speedy water-level method of raising and joining the members, instead of the usual slow inching of erecting derricks over newly laid sections at the bridge floor level.

Exclusive construction innovations, with modern fabricating short cuts which can be carried on simultaneously in 3 plants operating as a huge manufacturing unit, combine to save you time and money.

Our engineering-estimating department would like to quote on your jobs wherever fabricated structural steel is specified. Send your plans and specifications to us.

ALLIED STRUCTURAL STEEL COMPANIES

Engineers • Fabricators • Erectors

20 N. WACKER DRIVE, CHICAGO 6, ILLINOIS

Fabricators and erectors of structural steel for highway and railroad bridges; Industrial, office, school, and government buildings; Airport structures; Harbor facilities.

job, part of the Cachuma water project on the Santa Ynez River, and the thirsty Santa Barbara district of California can well use it this summer. Approximately 15,500 ft of steel pipe will supply the project, 7,500 ft. within the tunnel and 8,000 ft. from the tunnel to an existing water line running to Sheffield reservoir. Although current flow totals about 1 mgd., it is expected that when the pipe line reaches completion by July 15, the amount can be boosted by drilling laterals from the tunnel. The temporary line will be laid with a 6-in. covering of dirt. The tunnel water will be available until the contractor begins lining the bore, probably in about eight months or more. Tecolote Tunnel when completed will bring water from Santa Ynez River's Cachuma project to coast communities.

• **Detouring rather than 1-way** — In order to get its new roads finished and in use more quickly, the Maryland Roads Commission is considering detouring all through traffic around construction projects instead of requiring the contractors to maintain traffic while work is in progress. For many years Maryland has kept its roads in service while they were being rebuilt. This has resulted in a minimum of inconvenience to motorists but, in the opinion of William F. Childs, Jr., chief engineer for the commission, it has slowed construction work. Moreover, Mr. Childs believes, it has added to the cost by necessitating higher bids than would have been possible had the traffic-maintenance provision been omitted. The new policy would not apply to all projects.

• **To remove waterway bottleneck**— Negotiations have been completed with officials of the Seaboard Air Line Railroad and the Florida East Coast Railway to eliminate a bottleneck in the southern section of the Intracoastal Waterway system, which extends from Trenton, N. J., to the Florida Keys, it was announced by Maj. Gen. Lewis A. Pick, Chief of Engineers. The Seaboard has been authorized by the Corps of Engineers to advertise for bids for the removal of an outmoded rail crossing on Kingsley Creek near Fernandina, Fla., and the substitution of a more modern and longer span, recently made available by the abandonment of a Florida East Coast Railway line crossing the St. Johns River at Palatka. The substitute span, which has already been towed to the site, will have a horizontal clearance over 90 ft.

"IDEAL for sewer connections" . . . says E. A. Moore Excavating Co.

76% faster than competitive back-hoe!

E. A. Moore Excavating Co., Denver, Colorado, who formerly owned 3 competitive back hoes has finally switched to Bantams® — and with good reasons!

On recent sewer trenching job for *Mountain Plumbing Co.*, in Denver's new Val Verde subdivision, Moore's fast-moving Bantam *completed a total of 826' of 5' trench in 8½ hrs. — compared with only 468' in 9 hrs. for competitive rig under same job conditions.*

Leaves neat, clean trench

Despite heavy clay and gumbo soil, Bantam averaged *three* 65' x 5' house connections from 10 A.M. to 12 noon . . . leaving neat vertical side walls and level trench bottoms that needed no hand trimming. *R. E. Brawley*, 15-year veteran sewer layer, commented: "Bantam is one of the finest rigs to dig a trench for me."

Owner Ed Moore says . . .

"I find my Bantam a very economical machine. It really does the job . . . is easy to operate . . . and is very sturdy and efficient. Maintenance has been practically nil." In fact, Moore was so pleased with results achieved by his *first* Bantam purchased in October, 1950 that he bought his *second* machine in March, 1951.

You can save with Bantams

Whether your problem is digging, lifting or materials handling, you'll be money ahead with a truck-mounted Bantam. Costs less than half the price of bigger rigs . . . goes anywhere fast . . . gets more jobs done at less cost per job. See your Bantam Distributor or write: Schield Bantam Co., 201 Park Street, Waverly, Iowa.

SB-C-15

SCHIELD BANTAM

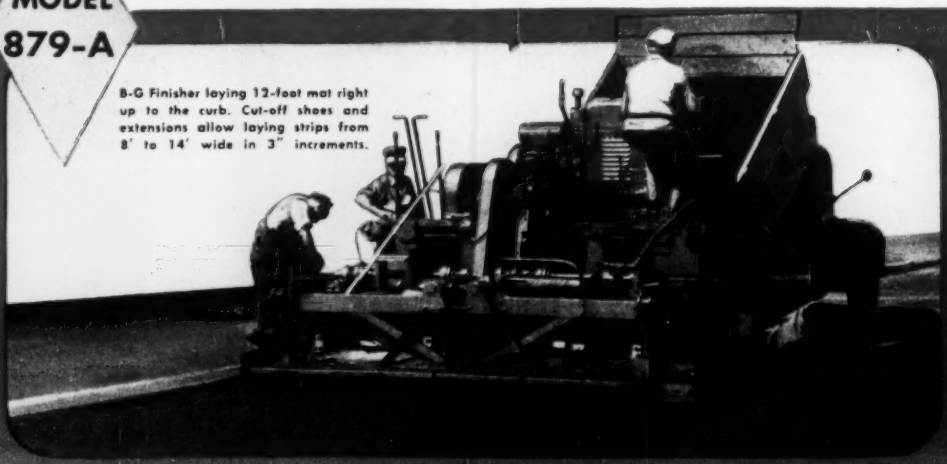
Costs less . . . travels 35 m. p. h.

GETS MORE JOBS DONE

Barber-

TAMPING-LEVELING FINISHER

MODEL 879-A



B-G Finisher laying 12-foot mat right up to the curb. Cut-off shoes and extensions allow laying strips from 8' to 14' wide in 3" increments.

SPREADS material evenly

COMPACTS to uniform density

LEVELS automatically without forms

Unequaled method for properly laying a smooth, level surface for paving streets, highways, runways, parking lots, tennis courts and similar jobs.

The world's most widely used paving machine: gives superior performance in laying every type of surface — hot or cold — from clay stabilized gravel to high-type sheet asphalt.

Tamps, levels and strikes off simultaneously: *automatically* measures the correct amount of *compacted* material, produces a level surface that is maintained under rolling and traffic.

Compacts material as it is being laid: while it is hot and workable — assures a superior surface of uniform density, even when laid over an irregular subgrade.

Whether paving over new subgrade or resurfacing existing pavement, the B-G leveling principle assures a smooth, ripple-free surface without the need of forms . . . abrupt changes in subgrade cannot change the grade line of the mat.

High capacity with low maintenance: saves truck time, reduces the amount of rolling required and size of crew.

see your B-G distributor

Greene

offers matchless advantages

. . . IN DESIGN

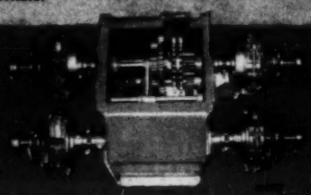
Basically, the B-G Finisher is two separate units, the tractor unit and the screed unit. This means that the entire traction and weight are on the base ahead of the material being laid, *with only the ironing screed riding the new pavement.* This dual-unit design also produces the exclusive B-G leveling principle that assures a smooth surface regardless of variations in the subgrade.

Screed is adjusted at either side for a given mat thickness, crown and for matching previously laid mat as required. Then as the crawlers travel over the uneven subgrade to a higher level . . .

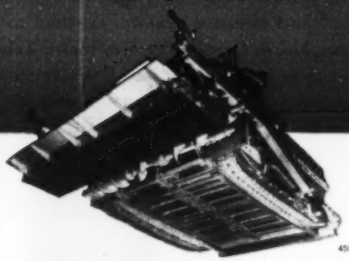
. . . leveling arms automatically tilt screed bottom up, but with considerably delayed action. As a result, the subgrade irregularity is minimized . . . abrupt changes in mat thickness are mechanically impossible.

. . . screed bottom will travel up to a renewed horizontal position, but delayed action produces an almost imperceptible change in the finished surface.

. . . IN CONSTRUCTION

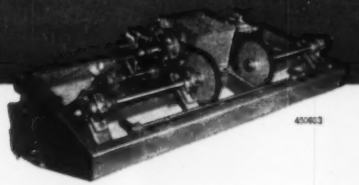


Precision-cut gears and heavy shafts provide positive power transmission to flight conveyors, spreading screws and crawlers. Finisher can push fully loaded truck that is feeding it, up an 8% grade. Four split-band friction clutches give instant response and control over every driven unit. Gear housing is fully enclosed, easily accessible for servicing.



450553

Underframe of the Finisher shows wide 10" crawler treads that give adequate traction and positive steering control. Notice the two independently operated flight conveyors on the 5-ton hopper floor that feed material the full width of the spreading screws. Operator can feed both sides evenly, feed more to one side or stop either one as required.



450603

Covered gearbox with chain drives assembled for the crawlers and flight conveyors on bottom of feeding hopper. Gears, clutches, and drives are all assembled as one unit which is welded to the tractor frame for perfect alignment and rigidity. Rugged sub-assembly construction helps give the B-G Finisher matchless durability.

send for interesting folder

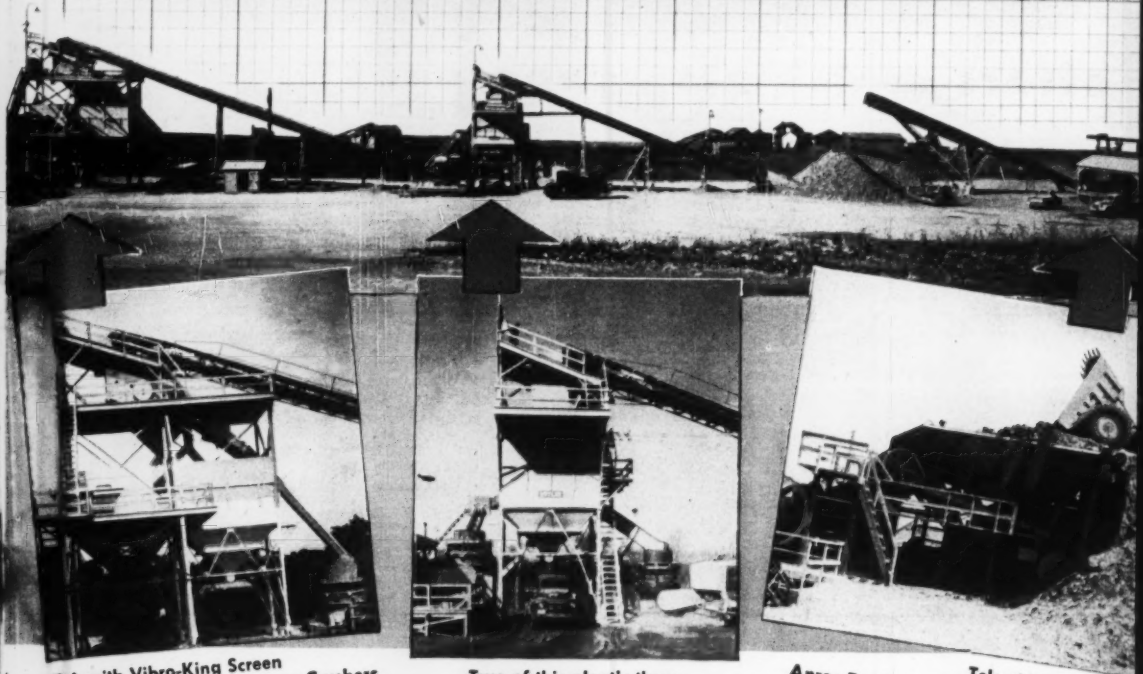
. . . that fully describes the operation of the B-G Finisher, and the unique principles responsible for its matchless performance. 210

BARBER-GREENE COMPANY

AURORA, ILLINOIS, U. S. A.

ENGINEERED by TELSMITH

TO PRODUCE 300 T.P.H. FOR NELLO L. TEER CO.



Telsmith Vibro-King Screen and one of three Gyrasphere Crushers

Two of this plant's three Telsmith Gyrasphere Crushers

Telsmith Heavy-Dut
Apron Feeder feeds 30″x42″ Primary Jaw

TELSMITH
Equipment in this plant

One (1) 42″ x 14′ Heavy-Duty Apron Feeder

One (1) 36″ x 6′ Heavy-Duty Plate Feeder

One (1) 5′ x 12′ Pulsator Double Deck Scalping Screen

One (1) 489 Special Coarse Gyrasphere Secondary Crusher

Two (2) 48 Fine Crushing Gyrasphere Tertiary Crushers

One (1) 5′ x 12′ Vibro-King Triple Deck Finishing Screen

One (1) 20″ x 15′ Twin Screw Classifier

Five (5) Telsmith-BG Conveyors, 18″ to 30″ wide, 72′ to 150′ long

● Large capacity of hard and abrasive granite, crushed to small sizes, features this Durham, North Carolina quarry plant. Telsmith-engineered-and-equipped to fit local conditions, it produces minus 1½″ traffic-bound macadam, minus ¾″ stone for asphalt plant, and minus 2½″ concrete stone; all meeting North Carolina State Specifications, and used in black-top plants and for roads and concrete construction.

Reliable tests show a capacity of about 300 tons per hour of minus 1½″ including about 70 tons per hour of minus ⅜″ asphalt stone; or, about 170 tons per hour when producing all minus ¾″ stone. Its three (3) Telsmith No. 48 Gyrasphere Crushers are responsible for this high capacity of small sized products.

Take your aggregate production problems to Telsmith Engineers. Send for Bulletin 266. Q-23

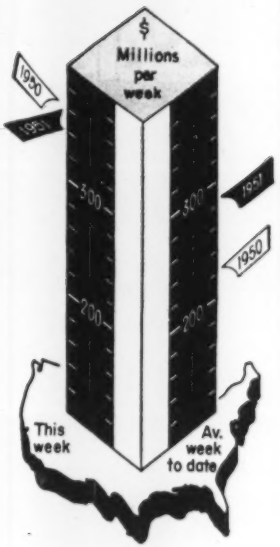
SMITH ENGINEERING WORKS, 500 E. CAPITOL DRIVE, MILWAUKEE 12, WISCONSIN

Cable Address: Sengworks, Milwaukee

51 East 42nd St. New York 17, N. Y. · 211 W. Wacker Drive Chicago 6, Ill. · 713 Commercial Trust Bldg. Philadelphia 2, Pa. · 238 Main Street Cambridge 42, Mass. · Boebek Eqpt. Co. Milwaukee 3, Wis. · A. N. Wigle, 362 S. Ashburton Rd. Columbus 13, Ohio

Clyde Equipment Co., Portland 9, Ore., & Seattle 4, Wash. • Mines Eng. & Eqpt. Co., San Francisco 4, Calif. • Interstate Equipment Co., Statesville, N. C.
Rish Equipment Co., Charleston 22, & Clarksburg, W. Va. — Roanoke 7, & Richmond 19, Va. • Wilson-Weesner-Wilkinson Co., Knoxville 8, & Nashville 6, Tenn.

THE CONSTRUCTION WEEK



Contracts by type of work

	This Week	Cumulative 28 wks 1951	1950	% chge
Waterworks	$1.6	$120.9	$125.6	−4
Sewerage	5.9	175.1	134.6	+30
Bridges	11.9	177.6	202.5	−12
Highways	32.4	613.3	677.2	−9
Earthwork, Waterways	19.0	296.4	270.9	+9
Buildings:				
Public	74.2	1,306.0	891.6	+46
Housg., pub.	58.3	458.4	132.3	+246
Housg., priv.	18.9	1,089.5	2,041.6	−47
Commercial	12.7	366.9	510.3	−28
Industrial	29.6	2,427.5	620.2	+291
Unclassified	96.5	1,017.0	637.6	+60
Total	**$361.0**	**$8,048.6**	**$6,214.4**	**+29**

(four-day week)

NOTE: Minimum size projects included are: Waterworks and waterway projects, $34,000; other public works, $60,000; industrial buildings, $82,000; other buildings, $300,000.

ENR COST INDEX

Index Base = 100		1913	1926	1949
Constr. Cost	July '51	542.36	260.71	113.70
Bldg. Cost	July '51	400.36	216.42	113.81
Volume	June '51	501	204	145

(other business news on p. 70)

THOSE ESTIMATES AGAIN—First phase of an investigation into some of the operations of the Corps of Engineers has been completed by a House appropriations subcommittee—which still is considering whether to continue the probe and or to report its findings. Thus far, the investigation has gone on behind locked doors. Information which has leaked out has been branded as "one-sided" by some committee members. However, a confidential report written by committee staff investigators has blasted the reliability of CE cost estimates on flood control, rivers and harbors projects.

CHEAPER BY THE MODEL—At a time when everything costs too much, it is satisfying to report a conclusion of Maj. Gen. Lewis A. Pick, Chief of Engineers: During the past 10 years hydraulic model studies carried out at the Vicksburg Waterway Experiment Station have effected savings of $62 million dollars in the construction and operation of Army civil works projects. The 59 model studies covered in the study related to flood control, navigation, wave action, river meander and salt water intrusion.

REFEREE REVERSES RULING—Reversing a previous decision, the National Production Authority has approved construction of a second underground parking garage for downtown San Francisco. The $2,229,000 garage is to be built in St. Mary's Square. Permission to build was denied several weeks ago (ENR June 21, p. 17), on the ground that the project would require too much critical material and that no unreasonable hardship would result if the structure were not built.

DON'T TINKER WITH THE WEATHER—Massachusetts Senate Committee on Ways and Means recommends a $1,000 fine for anyone seeking to influence the Bay State's weather by artificial means without state permission. The committee also approved legislation to regulate artificial rain- and snow-making. Artificial weather control would be permitted only after public hearings in areas affected.

CHEAP TITANIUM?—The leak was branded premature, but the information was certain: Horizons, Inc., a Cleveland, Ohio, firm, has developed a cheaper method for producing titanium metal that is good enough to get the U. S. government—particularly the Navy—very much interested. Present costs of producing titanium metal (sponge metal) is figured at a very expensive $5 per lb. Horizons—on the basis of small-scale laboratory tests—thinks it can do it for about $1 a lb. Navy researchers say flatly that the new process "gives excellent promise of fulfilling defense needs", refuse details on the process to protect Horizons, which hasn't completed patent negotiations. But at Navy urging, NPA has granted Horizons the materials to build a pilot plant for the process.

PRIVATE ENTERPRISE SUFFERS—Cutbacks by legislative action on California state building projects will reduce—possibly may eliminate—the necessity of calling on private architects to help prepare plans for state jobs. Under reduced construction planning, it is believed that the state architect staff can handle all the work. Within the past two years private architects have figured in state work totaling $110 million.

Don't Scrap PROFITS- from Scrap!

Today your DORMANT SCRAP* means more steel to help meet all-time high defense and domestic demands. Your country NEEDS it!

Today your DORMANT SCRAP* commands high prices.

HOW TO TURN SCRAP INTO MONEY...

with an organized dormant-scrap round-up in your plant:

1. Appoint a top executive with authority to make decisions to head the salvage drive.
2. Organize a Salvage Committee and include a member from every department.
3. Survey and resurvey your plant for untapped sources of dormant scrap. Encourage your employees to look for miscellaneous scrap and report it to the committee.
4. Sell your entire organization on the need to scrap unusable material and equipment.
5. Prepare a complete inventory of idle material and equipment. Tag everything not in use.
6. Start it back to the steel mills by selling it to your regular scrap dealer.
7. **KEEP AT IT!**

* Your DORMANT SCRAP is any obsolete, broken or wornout and irreparable machinery, tools, equipment, dies, jigs or fixtures, etc., that may encumber your premises. These, in the language of steel, are *scrap*, vital to steel production, and hence convertible into cash.

Steel is normally made from scrap and new pig iron in about a 50-50 ratio. The use of scrap means *better* steel, *faster* . . . because scrap has already undergone one refining process. Today under pressure of domestic and defense demands, the steel industry is consuming purchased scrap at the rate of 100,000 tons per day . . . an all-time high. *Your* dormant iron and steel scrap is *urgently* needed.

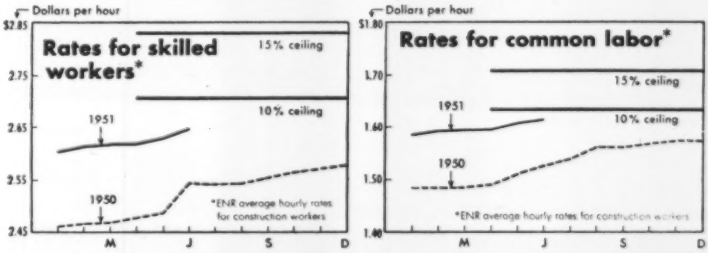
Round-up and sale of your dormant scrap NOW will benefit you, all steel users, and our country by:

1. Keeping the steel furnaces producing at their highest rate in history.
2. Conserving our vital iron ore reserves. The *more* scrap used in steelmaking, the *less* ore needed.
3. Making *better* steel, *faster*.

INLAND

INLAND STEEL COMPANY

38 South Dearborn Street • Chicago 3, Illinois

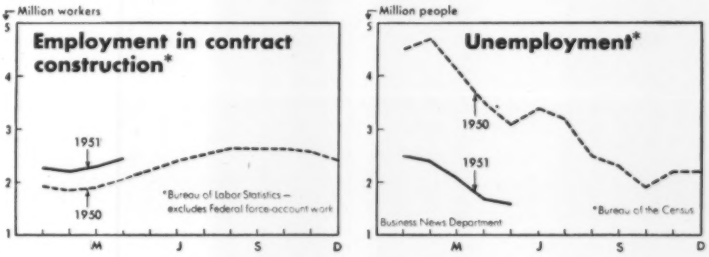


MANPOWER OUTLOOK: WAGES UP, SUPPLY TIGHT

Manpower problems threaten to cause trouble for construction this year and next. Wages—still going up—promise to keep on rising. The supply of workers is expected to get tighter through 1951 and the first half of 1952.

• **Higher Wages**—Construction wage rates can still rise a long way before hitting the government ceiling. ENR's averages haven't yet reached the old, obsolete limit of a 10% raise over January, 1950, levels, and the ceiling itself is going up —by December it may get as high at 15% over the base. The graphs above show what that could mean for construction wages.

Wages obviously won't hit the government ceiling right away. But the ceiling is bound to set the standard in future wage negotiations—so contractors will have to plan on paying much higher wages in the not-too-distant future.



• **Tight Labor Supply**—Nearly everyone wants more workers these days. Nonfarm employment was 46.1 million in May, a new high for the season. May employment in contract construction set a new record for the month. As a result, unemployment in May was about as low as most experts think it can go in peacetime.

For a while there won't be enough workers to go around. Growing defense production is taking more and more workers, putting extra-heavy pressure on the supply of skilled labor. At the same time, many civilian industries— including construction—need as many workers as last year, even more in some cases. The work force can't grow fast enough to keep up with these needs. It usually grows about 800,000 in a year, but it's no bigger today than it was last year—the armed forces took all the normal increase and more besides.

• **The Outlook—The situation should improve—barring a new international incident—some time next year. By then the increase in the number of workers should begin to catch up with industry's needs. But in the meantime, workers —particularly skilled ones—will be increasingly hard to find in most parts of the country and contractors may be hard put to man all jobs fully.**

CLYDE WHIRLEYS

LOWER THE BOOM ON HANDLING COSTS!

Clyde Whirleys incorporate features in design and construction that permit handling more materials faster, easier and more economically.

Whether you handle materials with a clam-shell bucket, magnet or with a hook, Clyde high capacity Whirleys are available in a range of sizes to meet almost any production schedule.

Tell us your handling problems and let Clyde's experienced engineers make recommendations best suited for your particular requirements.

CHECK CLYDE'S ADVANTAGES!

Hoisting machinery and cab are shipped intact . . . saves days of costly erection time. Equalizing wheel carriages insures against wheel overloading and saves replacement and maintenance costs. Rotating structure revolves freely and smoothly on tapered wheels . . . no slippage . . . no wearing. Hoist is specially designed for Whirley service; has easy operating, air operated band frictions. Heavy duty, double, equalized foot brakes give positive load control at all times. Center of gravity within limits of rail circle eliminates tipping danger.

Hoists • Derricks • Whirleys • Builders Towers • Car Pullers • Handi-Cranes • Rollers

CLYDE IRON WORKS, INC.

DULUTH 1, MINN

Subsidiary of Barium Steel Corp.

Record Six Months

THOSE IN THE BUSINESS of building mass housing won't join in the celebration, but the first six months of 1951 nevertheless chalked up more construction contracts than any like period in history. The figures recorded by ENR add up to nearly $7.3 billion. Even when this is adjusted for a 6% rise in costs, it represents a 19% increase in physical volume over the first half of 1950.

Industrial building contracts, spurred by defense needs and encouraged by quick tax amortization allowances, were the pace setter. Accounting for nearly a third of the total, they gained 310% while private housing contracts were falling off 46%. The only other significant loser was roads, down 12%.

What of the next six months? Lacking the bouyant effect of industrial building contracts, which is certain to decrease, there will be some falling off, and some change in pattern. But the reduction cannot be serious, and the new pattern, which will put more emphasis on military public works, ($4.5 billion in the fiscal 1952 budget) will spread the types of construction pretty well across the board.

In addition, costs have firmed up and materials production continues at a high rate. An end to the Korean war will not—and of course should not—cause any letup in construction commitments. An estimate can be only a guess, but all signs point to a $6 billion dollar half year, bringing ENR's total for 1951 to $13.3 billion, or an increase over last year of about 8%.

Shortages of professional men

ENGINEERS are not alone in their lack of enough men graduating from their professional schools to meet the nation's growing needs. Physicians face a similar situation. Consequently, engineers may find food for thought in some of the subjects discussed at the recent annual meeting of the American Medical Association.

That association has set up a Health Resources Advisory Committee to keep the Department of Defense informed as to the effect of withdrawal of physicians from civilian practice. This committee in turn has set up state advisory boards with the approval of the Defense Department to recommend deferments of young physicians where loss of their services would be a serious handicap to any community.

In the field of engineering, the Engineering Manpower Commission of Engineers' Joint Council would appear to be a close parallel to this AMA advisory committee. Whether engineers would do well to follow the AMA lead in setting up state or regional committees to present individual cases to draft boards is an open question warranting study. The EJC manpower commission has brought the question of deferment of key engineers to the attention of draft boards in a pamphlet recently issued under the title of "Utilizing Engineering Manpower — Deferment Procedures." Pending a decision on setting up local advisory committees, any local group faced with this issue will find this pamphlet helpful.

The AMA also gave consideration to a proposal that would require "each medical graduate to serve his country the same as each 18 or 19-year old under universal military service for a prescribed period of time." This proposal was made on the assumption that the current defense emergency might last for ten years. Engineers would do well to give serious thought to a like proposal in their current planning to step up the number of engineering graduates.

Limiting highway access

UNCONTROLLED ACCESS by vehicles to a busy highway is a major cause of accidents. This serious situation has mostly been merely viewed with alarm, but in Maryland a new law has just been passed which may give road planners the control authority they have been looking for. It came about this way:

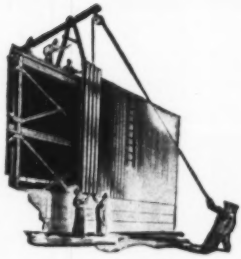
In many parts of the country, highways that are modern in other respects have had their capacity cut down and their accident record stepped up by vehicles moving into or out of marginal areas occupied by commercial enterprises. Original purchase of a wider right-of-way would have helped. Yet it would not have eliminated the trouble entirely because both the courts and the state legislatures have been reluctant to put any restrictions on the access rights of property owners along an existing highway. Several states now have laws limiting access to new through highways, but this is only a small part of the problem.

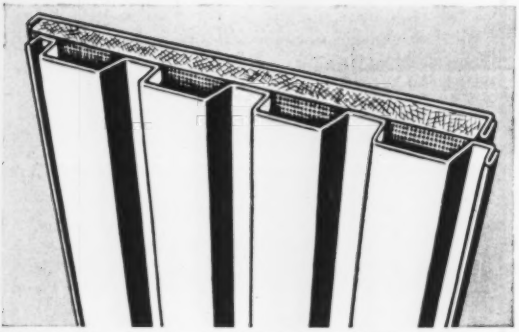
Maryland's General Assembly has undertaken to meet the situation by a method that has promise of being acceptable to the courts. Instead of denying access to any property, a new law authorizes the State Roads Commission "to limit the width of points of existing ingress or egress, and determine the location of same" on any highway carrying more than 2,000 vehicles a day. New openings to highways carrying such a density of traffic can be made for commercial or industrial purposes only upon permit from the commission.

If these restrictions stand up under court test they should help very materially in reducing accidents in Maryland. By careful selection of the points at which vehicles can enter or leave commercial establishments along busy highways, and by channelizing those roadways, much of the current "vehicle friction" can be eliminated.

Needless to say, this experiment in access control will be widely watched.

FOR WALLS...*fast*

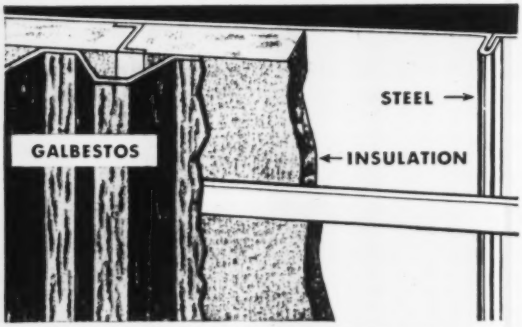




ROBERTSON Q-PANELS

Factory-assembled Q-Panels go up quick—50 sq. ft. in nine minutes. Only a small crew is needed to attach panel to frame. Perfect for powerhouses, administration, research and laboratory buildings. The distinctive fluted surface provides an interesting wall texture.

WEIGHT	SIZE	INSULATION	FINISHES*
In Steel—6 lbs./sq. ft.	2' wide; lengths up to 25' depending on material used.	Complete panel is 3¼" thick with insulation value superior to a 12" masonry wall with furred plaster. U-factor—.14 in aluminum; .18 in steel.	Steel, aluminum, stainless, Galbestos metal**. *Depending on availability.



ROBERTSON G-PANELS

Factory-engineered for quick field assembly, G-Panels provide commercial and industrial buildings with good-looking, maintenance-free walls. G-Panels are insulated, lightweight and capable of long spans to reduce the over-all weight of your building. G-Panels have the advantage of Top-Speed Fastening, a Robertson method by which greater areas of walls can be installed per crew. All work is done from the outside, eliminating interior scaffolding.

WEIGHT	SIZE	INSULATION	EXTERIOR
7 lbs./sq. ft.	12' long, width determined by size of Galbestos sheet.	U-factor—.16	Galbestos metal**

**THIS IS GALBESTOS METAL

Steel sheet with asbestos felt metallically bonded to it. The felt is then impregnated with asphalt and waterproofed. The bond is inseparable, to all purposes forming a new kind of material. Maroon, black or aluminum color; fabricated in a variety of shapes.

Write for Free

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H. H. ROBERTSON CO.

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ENGINEERING NEWS-RECORD

JULY 12, 1951 VOL. 147 NO. 2

Construction industry faces severe shortage of steel

Structural steel supply for fourth quarter seen inadequate to meet industrial expansion program—1952 construction volume estimated at 70% of 1950

Structural steel shortages may cut future construction to lower levels than defense officials estimated three weeks ago. If the nation holds to its defense program, the physical volume of construction in 1952 will likely be only about 70% of the 1950 volume—not 80% as forecast recently by Mobilization Director Charles E. Wilson.

A construction slow-down in 1952 by 70% of the physical volume in 1950 would not show up to the same degree in dollar figures. On July 1, the ENGINEERING NEWS-RECORD Construction Cost Index was 6½% above the 1950 average. Total physical volume in 1950 amounted to $27.9 billion.

Taking the cost index at its present level, 70% of the same volume for next year would require expenditure of nearly $21 billion. Actually, costs may be expected to go up in the next 18 months and the expenditure would exceed $21 billion.

Wilson repeated the 80% estimate last week in his second quarterly report to the President. Not long before, he had made the same tentative forecast in a letter to the subcommittee on mobilization construction of the U. S. Chamber of Commerce. Residential construction, he added, would run about the same as 1951, with some 850,000 housing starts during the year.

• **Too optimistic?**—Later scrutiny of structural steel requirements has cast severe doubts on the 80% estimate for overall construction in 1952. The doubts are sharpened by the estimates of supply vs. demand for the final quarter of this year. It appears that construction could approach the 80% level in 1952 only if designers turn quickly and energetically to substitutes for structural steel. Even then it is doubtful if the physical volume for the year could reach 80% of 1950.

Not a ton of additional rolling capacity for heavy structural shapes is being added by the steel industry as it increases its ingot capacity from 100 million tons to 118 million by 1953. Production of structural members is about 400,000 tons a month.

Requests for structural steel in the fourth quarter of this year under the Controlled Materials Plan are nearly double the anticipated output for the same three months. Demand will run heavily in excess of supply for the following two quarters—up to July 1, 1952.

Demand-supply estimates indicate that construction in the first half of 1952 will be able to proceed at only 60 to 70% of the rate of physical volume put in place during 1950. By the middle of next year, the structural steel situation should ease. In the second half of 1952, the rate of construction should equal 70% or better of the 1950 volume.

• **Basis of relation**—These prospects for next year are based on the same relation of structural steel to total construction that exists today, with a large quantity of shapes going into new industrial facilities, such as steel plants. The relation will remain much the same for the next 12 months or longer, unless alternate designs are substituted for structural steel.

Other defense requirements—freight cars, barges, towboats, ships, heavy machinery and overseas construction—are partly responsible for the shortage of structural shapes and plate to go into U. S. projects. (The pinch in the plate supply is as tight as in structural steel—probably even tighter.)

A year ago—in the third quarter of 1950—domestic construction was getting more than 70% of the supply of structural shapes. This year, the share going into construction is much reduced.

• **Found wanting**—Right now, the outlook for the fourth quarter has darkened to a point where there is not enough structural steel in sight for the industrial expansion program. The Defense Production Administration will have to cut down on allotments for some other programs to obtain structural shapes for industrial plants. The defense build-up will get priority and other claimants will have to settle for less.

Highways are an example. The Bureau of Public Roads asked for the same allotment in the October-December quarter as it received for the present quarter—300,000 tons of steel, including 85,000 tons of structural. The structural allotment may be pared to release shapes for other programs, such as industrial expansion.

(*Continued on page 24*)

CAA airport plan needs $662 million

Airports should be constructed or improved at 4,945 locations within the U. S. and its territories to meet existing and anticipated needs for the next three years—at a cost estimated at $662 million. Such are the findings of the Civil Aeronautics Administration in its 1951 National Airport Plan released last week.

Administrator Charles F. Horne announced the fifth "plan" in a series prepared by the CAA since passage of the Federal Airport Act in 1946 (ENR May 16, 1946, vol. p. 763). The act stipulates that local funds must match federal funds on projects authorized. CAA estimates that the 1951 plan would require $323,700,000 in federal appropriations and $338,300,000 in local-sponsor money.

• **Congress must give**—Inclusion of an airport project in the plan does not guarantee government money. On the basis of appropriations made by Congress, CAA will include in its program airport locations which show the greatest need. For fiscal 1952, national defense considerations will be a dominant factor in allocation priorities.

The construction program has not been announced but federal funds will be granted only for construction of a single runway, unless traffic volume requires more for simultaneous use.

Of the 4,945 locations listed in CAA's 218-page information manual (on sale at U. S. Government Printing Office, Washington 25, D. C.) shows 2,657 are for improvements to existing airports and 2,288 are for new fields. By states, Texas leads with 422 projects and California is second with 313 projects.

(*Continued on page 24*)

Engineering educators discuss steady decline in available trained manpower

Meeting of American Society for Engineering Education is told that current deficit is 60,000; defense research is big drain

How best to meet the steady decline in engineering graduates, in the face of a steadily rising demand for engineers, was the chief topic for discussion at the annual meeting of the American Society for Engineering Education, recently held at Michigan State College, East Lansing, Mich.

Palliatives suggested included working closer with high schools to increase the number of potential engineers who seek to take up engineering as a career; better use of the engineers now in public service and in military service; and more help from the engineers and research resources of our allies in the defense program.

Results of the latest spot check made by the Engineering Manpower Commission (ENR July 5, p. 25) were given by S. C. Hollister of Cornell, incoming president of the society. Dean Hollister said that the current deficit is around 60,000 and that the annual need in the years immediately ahead will be around 30,000. This year's graduating class exceeded that figure but next year's class will be down to 26,000—and there will be only 12,000 in 1953.

James W. Armsey of Illinois Institute of Technology, speaking at the concurrent meeting of the Engineering College Research Council, urged the educators to step up their efforts to maintain a steady flow of students into engineering and asked them to make no compromise with educational quality in the current emergency.

• **Federal research program**—The total number of engineers and scientists needed for the research program of the Department of Defense now is 56,000, or 43% of the men in the nation equipped for that purpose. By the end of next year it will be up to 68,000.

These figures were given by Eric A. Walker, executive secretary of the Research and Development Board. Walker reported that similar shortages exist in other scientific fields and probably will grow more acute.

The recent change in selective service policy that permits deferment of college students maintaining exceptional grades may be some help in meeting this situation Walker said. More help, he expects, will come from a policy now being developed by the Assistant Secretary of Defense for Manpower which is designed to make more effective use of scientists and other specialists in military service.

• **New Officers**—S. C. Hollister, dean of the College of Engineering at Cornell University, was elected president of ASEE, succeeding F. M. Dawson, dean of the College of Engineering at the University of Iowa. New chairman of the Civil Engineering Division is Edwin H. Arnold, head of the civil engineering department at the University of Ohio, Athens, Ohio.

CAA plan . . .

(*Continued from page 23*)

• **Service types**—In a departure from previous issues of the plan, airports are listed by service types, rather than by numerical classes. Under this breakdown proposals for the U. S. include 2,310 personal type airports; 1,148 secondary fields; 656 feeder airports; 303 trunk airports; 77 express airports; and 64 continental and larger. Also listed are 304 seaplane bases and 83 heliports.

As conceived and voted into existence in 1946, the National Airport Act authorizes the expenditure of $520 million by the federal government by the middle of 1948. Stipulations are that airport sponsors receiving federal aid must match the funds received from the government and that the CAA cannot spend more than $100 million in any single year.

The federal government has appropriated a total of $181 million since 1947 when the program began.

Construction begins on $50-million chemical plant

Construction is being started immediately on a $50-million petro-chemical plant at Edmonton, Alberta, by Canadian Chemicals Co. Ltd., a Celanese Corp. of America subsidiary.

The plant will cover between 200 and 250 acres and is scheduled to go into production in 1953. It will produce formaldehyde, methanol, propylene glycol and other alcohols and solvents, using natural gas from northern Alberta fields, and cellulose acetate from pulp produced at the Columbia Cellulose plant, Port Edward, B. C.

General contract has been awarded to Brown and Root Ltd., a Canadian subsidiary of Brown and Root, Texas. A 500-acre site on the south bank of the North Saskatchewan River at Edmonton was bought for the plant.

Steel shortage . . .

(*Continued from page 23*)

In the tight fourth-quarter situation, not a pound of structural steel can be spared for commercial building. Many commercial projects will have to slow down or stop temporarily, with resultant loss to owners and builders. This impasse—and other conditions associated with it—has led to a plan in the National Production Authority for combining construction permits with CMP.

• **Talking it over**—The Construction Industry Advisory Committee was called to Washington this week to discuss the plan. It may be put into effect before the week is out. If adopted, all applicants for projects using more than the stipulated maximum amounts of steel, copper and aluminum will have to request CMP allotments. Up to the present, an applicant has not had to ask for allotments unless he wanted to.

Under the new plan, a project could not get started until controlled materials had been allotted to it. This procedure would eventually eliminate such tie-ups for commercial job, as are predicted for the fourth quarter.

In the light of the fourth-quarter outlook, both the NPA field offices and the Washington construction controls staff have been over-liberal in granting permits. Many projects with strong backing have been turned down, but the controls division has been generous—or realistic, depending upon how you look at it—in approving others. According to Washington reports, neither the Construction Controls Division—nor the Facilities and Construction Bureau of which it is a part—favors the plan to make permits subject to CMP.

Ontario to try new plan for public housing

Essentially-needed homes will be provided throughout Ontario under a new plan, which spreads construction costs among three levels of government, according to Premier Frost, of Ontario. A pilot construction schedule for 5,000 homes is ready for an immediate start of operations. The plan may be extended to the eventual building of 25,000 homes.

Under what amounts to a public housing venture, construction costs will be shared: 75% by the federal government, 17½% by the province of Ontario and 7½% by the municipality concerned. The city's share is equivalent roughly to the cost of necessary utilities, roads and sewers.

Homes are to be built in the areas of greatest need.

Western Canada busy with water, power

British Columbia working on plans for large increase in electric power; asks greater Libby Dam share

British Columbia engineers are studying a hydroelectric site on the Fraser River that is believed to have a potential of 1.5 million hp. Site of the dam would be at Moran, 170 miles from Vancouver.

E. C. Carson, Minister of Public Works, has revealed that the dam would be placed in a narrow canyon and that the resultant lake would back up the Fraser for a distance of about 100 miles.

• **Capilano water**—Work has started on the $7-million dam of the Greater Vancouver Water Board, on the Capilano River near North Vancouver. Gilpin-Nash Co., Vancouver, is the general contractor; General Construction Co. and Bay Construction Co., both of Seattle, are associated with Gilpin-Nash on the job.

The dam will be a concrete structure, 325 ft high. First part of the job is the creation of a 100-ft tunnel, 30 ft in dia, to divert the river.

• **For a greater share**—British Columbia officials are putting up a stiff battle to support their demand for a one-third share in the proceeds from the output of the proposed Libby Dam and hydroelectric project for the Kootenai River in Montana (ENR Feb. 8, p. 31).

The 271,000-hp Libby installation would back up water for 42 miles into Canada. This fact makes the project one to be passed upon by the International Joint Commission.

U. S. officials have suggested a cash payment in dollars as remuneration for water and storage rights—based on loss of farm lands, timber and other factors. But B. C. representatives estimate that their province actually is entitled to 41% of Libby power. They state that by using the water twice more after it passes the dam, the U. S. can realize another 700,000 or 800,000 hp.

Meanwhile, the new 33,000-hp hydro plant of the British Columbia Power Commission at Whatshan Lake (ENR Jan. 8, 1948, vol. page 30) has gone into operation.

Miners Western Ltd. built a 2.5-mile tunnel for the $6-million installation. The tunnel, providing a 710-ft head from Whatshan Lake to the powerhouse on Lower Arrow Lake, was completed in 19 months, much of the work being through solid rock.

Power is provided by two 16,500-hp turbines; ultimate capacity is to be 66,000 hp. Whatshan Lake has a storage capacity of 74,000 acre-ft.

Feather River project authorized

The billion dollar Feather River water conservation and power development project in California (ENR June 7, p. 25) has gained the support of the state legislature only a month after it was outlined in a report (by State Engineer A. D. Edmonston) as being a feasible venture for state construction.

The legislature passed a bill to authorize the California Water Project Authority to issue revenue bonds, without a fixed limit, to pay the costs.

These units include a 3,500,000 acre-ft capacity dam on the Feather River near Oroville; power plant facilities at the dam and afterbay sites; a power transmission line 150 mi long to Bethany in the Sacramento-San Joaquin delta; a standby steam plant; and a system of canals to divert water into the San Francisco bay region, coastal counties and into Southern California.

The Feather River bill offered no funds to enable the state engineer to complete detailed studies and construction plans but there were indications money will be made available to the state division of water resources for the engineering work.

Governor Earl Warren described the legislation as California's most significant water conservation enactment since the Central Valley Project plan was approved in 1933. He said it is probably the most important single piece of legislation of the 1951 session.

The state authorization bill was opposed by the Pacific Gas and Electric Co. Robert Gerdes, attorney for the power company, told the legislature his firm recognizes the building of the $400,000,000 Oroville Dam and power facilities as a project of merit and need.

However, he declared, the company, as one of the largest taxpayers in the state, objected to authorizing the scheme to build the elaborate system.

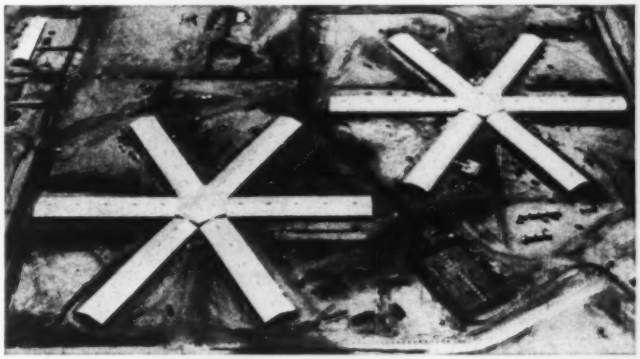
The company was defeated in its attempts to have the bill amended to exclude all portions of the project except the Oroville Dam, power plant and afterbay dam and power plant.

High water slows work on McNary Dam construction

McNary Dam Contractors, the group holding the contract for construction of McNary Dam (ENR Mar. 29, p. 224), have turned their attention to work on the power house and other phases of construction, pending return of the Columbia River to normal summer flow, when replacement of cell No. 52 in the main step cofferdam will be undertaken. The cell collapsed during flood-flow conditions this spring.

The collapse was due to the combination of great pressure caused by high water and undercutting of the cell's foundation. The cofferdam enclosure, totaling some 43 acres, was already flooded by high water in the river, preventing any work in the area.

It will be necessary to replace the cell before the area within the cofferdam wings can be unwatered so that excavation can be resumed.



SPOKES FOR THE WHEELS—Six radiating wings around a hexagonal hub in each of two buildings at the Atomic Energy Commission's Savannah River project (ENR Dec. 7, 1950, p. 25) house offices for officials of AEC and E. I. du Pont de Nemours & Co., who is constructing and will operate the facility. Buildings are of prefabricated steel construction, wings measure 300 ft by 60 ft and provide a maximum of daylight along both sides of each wing. A similar layout was utilized by the R. G. LeTourneau organization in the construction of a one-story hotel at Tocca, Ga., where frameless, cellular steel construction was employed (ENR Mar. 13, 1941, p. 69). (Wide World photo)

Highway construction, maintenance and money are composite problem

More money is needed everywhere, but legislators are running into determined opposition against increased highway-user charges

Highway construction and maintenance continue to occupy a large share of attention of officials in most states. Steady increases in traffic—and an almost equally steady falling-behind in new construction—continue to furrow the brows of legislators who must find the money. And ruffled are the feelings of highway users who pay ever higher automotive fuel taxes and increased license fees.

In Oregon, the first allocation of funds by the state highway commission, under the $40-million bond revenues authorized by the 1951 legislature, has gone to the new water-level Columbia River highway. The amount allocated is $6 million.

Arizona expects to have about $23 million available for highway construction in this fiscal year. This includes about $11 million in new money, derived from federal aid, state gas tax and other motor vehicle revenue. In addition, the state has a carryover fund of $12 million.

In Maine quick passage through the legislature is anticipated for the state's $27-million bond issue for highway construction. The bonds would finance a seven-year rebuilding program, under which about 1,600 miles of road reconstruction is planned.

Tennessee has plans to construct 1,650 miles of rural roads during the fiscal year beginning July 1. The plan includes roads in each of the 95 counties and by another year it is estimated that a total of 5,150 miles of such roads will have been completed or under contract.

• **Money problems**—Obtaining of the funds to match federal aid taxes the skill of legislatures and state highway officials alike. Illinois is driving to hold nearly $15 million in federal aid that the state has been unable to match from current motor-fuel tax revenues. A measure has been sent to Gov. Adlai Stevenson raising such taxes by two cents a gallon.

The tax increase is expected to produce additional revenue to the tune of $100 million annually, but it is well below the five-cent increase asked by Gov. Stevenson.

The Missouri House has passed a bill, said to be approved by a truck-bus lobby, that raises truck and bus license fees for the state about $2.5 million annually. Defeated were two bills which were designed to increase present annual fees from $4 million to $12 million a year.

In the new measure most of the fee increases would be applied against the smaller trucks. The truckers lost out in an attempt to increase maximum truck weight from 56,000 lb to 64,000 lb and to increase maximum vehicle length from 45 to 50 ft.

Michigan's legislature overrode Gov. G. Mennen Williams after he had vetoed a gasoline tax bill providing an increase from three cents to four and one-half cents per gallon. The governor claims that the highway program can be financed for much less.

In California Governor Earl Warren signed a bill that prescribes mandatory fines for overloading of trucks. Fines are set at $10 for 1,000 to 1,500 lb of overload and increase to $1,000 for 12,501 lb and over.

• **Turnpikes, expressways**—A proposal for the construction of a turnpike across the northern tip of Indiana has been laid before the state's toll road commission by Samuel C. Hadden, chairman of the state highway commission.

The route suggested would be from Gary south of LaPorte, through Elkhart and thence paralleling U. S. Route 20 to the Ohio state line. A connecting link would run north from Elkhart to join Michigan State Road 112.

HOOK FOR THE BIG ONES—Giant hook is part of the 125-ton overhead, traveling, bridge crane at Tenkiller Ferry Dam on the Illinois River in Oklahoma. The crane, built by the Pacific Coast Engineering Co., Alameda, Calif., for the Army Engineers, is used to handle service, emergency and penstock gates at the dam. It is the first of 11 bridge and gantry cranes being built by the firm for the Engineers and the Tennessee Valley Authority.

Its eastern terminus would connect with Ohio's proposed east-west turnpike which has become the subject of a heated controversy that echoes with charges of "politics" and "land grab" along the supposedly secret mile-wide band through northern Ohio over which the super highway eventually is to be constructed.

Virginia, too, wants to get into the act. Commonwealth Turnpike Corp. has been formed and is formulating plans for the development of a toll highway connecting the Richmond and Petersburg areas. The cost is estimated to be from $25 million to $30 million and financing is to be through bond sales to provide private capital.

• **Expressways make news**—In Richmond, too, a citizens group has joined forces to oppose a bond issue for the Richmond Expressway (ENR Apr. 27, 1950, p. 56). The move is technical, to bring about the group's demands that the city council consider a different route for the proposed expressway—to minimize destruction of valuable property.

Also technical is a test suit filed in the Michigan State Supreme Court, Lansing, to consider the validity of an $80-million bond issue to complete the Edsel Ford and John C. Lodge Expressways in Detroit (ENR Apr. 12, p. 31).

John H. Witherspoon, Detroit's comptroller, is technical defendant. To bring the matter to court, he refused to sign the bonds and a writ is sought to force the issue. Bond houses declare that the procedure may serve to bring on a lower interest rate.

Two engineering firms retained as consultants by Oklahoma propose a diagonal by-pass to eliminate heavy traffic in downtown Tulsa. The proposed route would start some 10 miles east of the city and would move through traffic seven miles south of the downtown business district. Connection would be made with the Oklahoma City-Tulsa Turnpike now in the surveying stage. Cost is expected to be in the neighborhood of $20 million.

• **Maintenance**—North Carolina's highway commission has allocated $37 million to maintain the state's roads during the coming fiscal year. In making allocations, the commission allowed an extra $20 per mile for maintaining mountain roads in three of 10 highway divisions. This brings to $50 per mile the extra money earmarked for mountainous terrain and clearing of snow. All divisions receive a flat $642.37 per mile for state system maintenance.

Boston port business spurs plan for greater expansion

Port of Boston officials have decided that an original "master plan" for the expenditure of $19.7 million in developing deep water facilities is outgrown and that the plan must be implemented with further construction to meet present and future needs.

In the spring of 1946, it appeared that completion of the four stages of the master plan would meet the requirements for a long time (ENR June 6, 1946, vol. p. 893). Included was construction at Hoosac Docks and Mystic Pier, Charlestown; the Boston & Albany Terminal in East Boston; and at Castle Island, South Boston.

Although rapid progress is being made in the construction of Pier No. 1 of Mystic Docks, all existing piers are strained to capacity, with one pier having been pressed back into service after several years of idleness.

It is recommended now that a big passenger terminal with two supporting cargo sheds and a three-story industrial center be erected along a marginal type of wharf. Also included in the new long-range plan is more extensive development of original construction schedules and the addition of several new terminals to replace Piers 4 and 5 in East Boston.

Construction to begin on New York air terminal

An early start is scheduled for the construction of a new airlines terminal on New York City's East Side, near the west entrance to the Queens Midtown Tunnel, following five years of planning.

The Triborough Bridge and Tunnel Authority has agreed to develop the $5.5-million terminal—with the stipulation that it be fully repaid within 20 years (including interest) and that title remain with the city. The terminal has been leased and will be managed by East Side Airlines Terminal Corp., a joint corporation made up of the ten major airlines planning to use the facility.

Specifications for the structure have not been made public but it will occupy a plot of 80,000 sq ft and is designed to serve the needs of 21 airlines using New York International and LaGuardia Airports—including eleven foreign air carriers. The building will be one and one-half stories high and will accommodate public parking for 275 cars. The roof also can serve as a heliport, whenever helicopter service becomes necessary.

Design is by architect John B. Peterkin, general contractor is S. S. Silberblatt, both of New York.

Ohio turnpike cost: near $300 million

Preliminary estimates set the cost of building a 241-mile toll turnpike across Ohio at $297,457,000 or $298,154,000, depending upon the layout adopted. Average annual earnings are set at $24,910,230.

These figures were presented to the Ohio Turnpike Commission on July 3 by the J. E. Greiner Co. of Baltimore, consultants on designs, and Parsons, Brinckerhoff, Hall and Macdonald, New York, consultants on traffic and earnings.

T. J. Kauer, director of highways for Ohio, in announcing the figures, stated that the consultants found the turnpike feasible from both an engineering and economic viewpoint, and that as a result, plans for financing the work would be started at once in hope that they could be completed by mid-September. This would permit calling for bids by Jan. 1, 1952 and a start of construction by March next year.

Transposing the eastbound and westbound traffic lanes and placing of all services between the opposing lanes is proposed by the J. E. Greiner Co. in its report as a safety measure.

If this layout is adopted, the cost is set at $298,154,000 by the Greiner staff as against a cost of $297,457,000 if the normal positioning of traffic lanes is employed. (Details of this proposal to transpose traffic lanes are to be published in the July 26 issue of ENR, together with comment on the proposal by engineers associated with other turnpike design studies.)

The proposed turnpike is to extend across the northern part of the state, from a connection with the Pennsylvania Turnpike near Petersburg to a connection with U. S. Route 20 at the Ohio-Indiana line, in the northwest corner of the state. Eighteen points of interchange with major state highways would be provided.

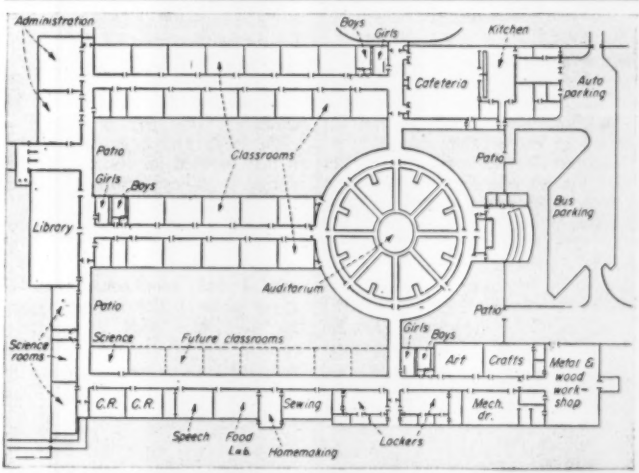
Estimates of income are based on passenger car tolls amounting to about 1½ cents per mile. Charges for commercial vehicles would be about 2¾ cents per mile.

Chicago prepares plans for filtration plant in lake

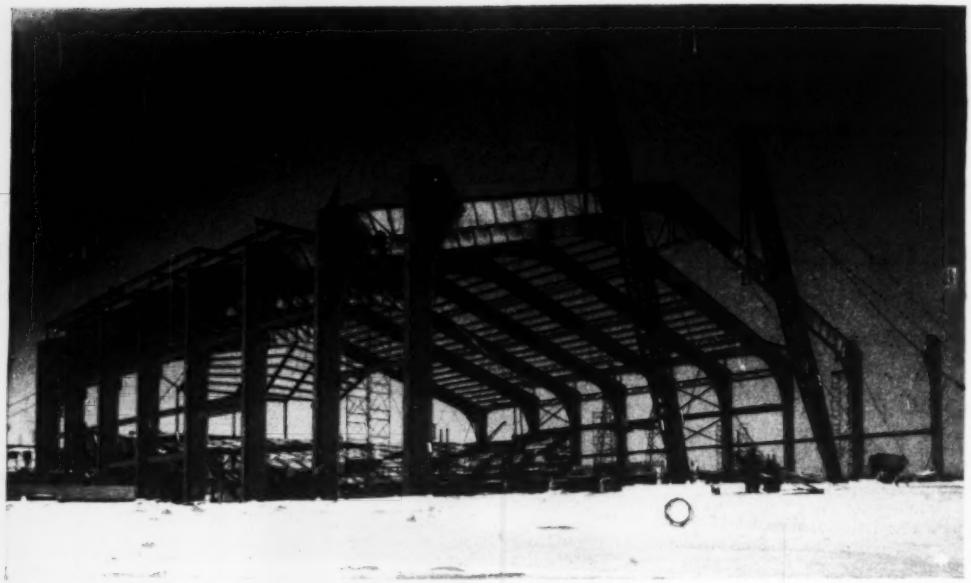
The city of Chicago has been granted an interest-free advance of $486,000 by the Housing and Home Finance Agency for use in engineering studies and drawing of plans for its long-sought Central District filtration plant (ENR Feb. 8, p. 29).

When completed, the project will have cost approximately $78 million. The plant will consist of 23 units, constructed on 61 acres of land, currently submerged, in the outer harbor, east of Lake Shore Drive and north of Navy Pier. It will provide filtered water for 3 million residents of Chicago and adjacent suburbs.

Engineers for the city include W. W. DeBerard, city engineer, and the firms of Alvord, Burdick and Howson, and Greeley and Hansen.



CIRCULAR AUDITORIUM—School activities in the Kinloch Park Junior High School, Miami, Fla., will flow around a circular auditorium seating 1,200, with a 30-ft dia stage in the center. Plans are being completed and construction is slated to begin immediately. The one-story building will have facilities for 1,200 students. Provided are 27 regular classrooms and other special rooms for varied school activities. Design is by architect William H. Merriam. (Sketch by Miami Daily News)



GIN POLES rigged to boom up and down, erected the rigid frames of the Allen County War Memorial Coliseum (Indiana). Having lifted a rafter, they held it while it was welded to previously erected columns.

Welded rigid frames span 224 ft for . . . . .

Ralph E. Coblentz
Chief Engineer
A. M. Strauss, Inc.
Fort Wayne, Ind.

STEEL RIGID FRAMES of record-breaking span support the lightweight roof of the Allen County War Memorial Coliseum, now under construction near Fort Wayne, Ind.

Spaced 27 ft apart, frames span 224 ft. [For comparison, riveted rigid frames in the Oregon State College basketball pavillion, Corvallis, Ore., span 222 ft (ENR Aug. 11, 1949, p 36); riveted arches of hangers at the New York International Airport span 300 ft (ENR May 25, 1950, p 40).]

Knees of the coliseum frames are 55 ft above the floor and crowns are 88 ft high. The long span and height make available ample space for a 108x223-ft arena and for 7,150 spectators in permanent, concrete, bleacher-type seating with unblocked lines of sight. Additional temporary seating increases the capacity to 8,900 for ice hockey, 10,420 for basketball and slightly more for boxing.

• Multipurpose structure—The building, 258 ft wide by 400 ft long, was designed to serve widely diversified interests of several groups of people—sport fans, farm groups, cattle raisers and fair-goers. These requirements led to the building of an exhibition hall in the basement of the coliseum and a sports arena and grandstand on the first floor.

Because of the sloping site, the exhibition hall may be entered at grade level. Hence, in bad weather, it may be used for customer parking during arena-floor shows. Ordinarily, though, sufficient parking space is available outdoors on coliseum property for all events.

• Wall and floor construction—Exterior walls of the coliseum mostly are 4-in. face brick bonded every seventh course to 8-in. lightweight concrete-block backup. The block will be left exposed in the interior above the stands and in the ramps. Cut stone facing is used around the pilasters at each rigid frame and for facing walls around entrances. Granite also forms the facing at entrances where the stone soon would become dirty.

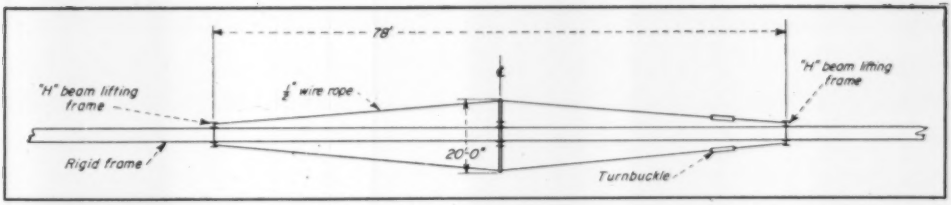
The arena floor is a 9-in. thick flat slab. It is designed for a live load of 330 psf, plus an ice-rink dead load due to 4 in. of cork, waterproofing membrane and 6 in. of lightweight concrete in which brine pipes are embedded. The slab is supported on 18-in. dia concrete columns spaced 27 ft on centers. These in turn, rest on a hard, well compacted soil. Footings are designed for 8,000 psf.

• Bleachers hang from frames—The arena is entirely surrounded by permanent concrete stands. From a structural viewpoint, these are noteworthy because they are supported in an unusual manner.

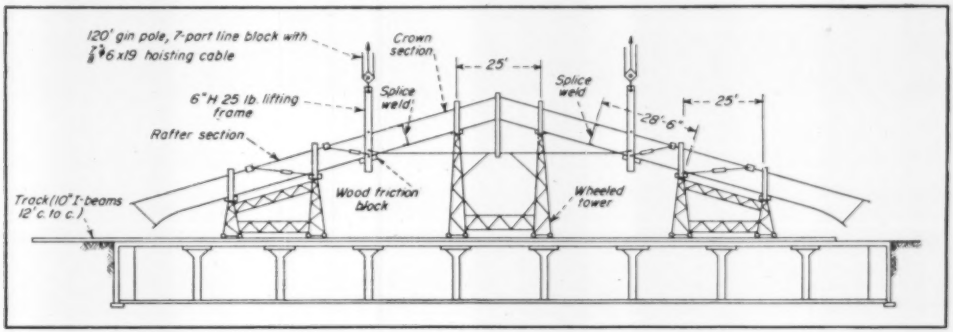
Because of the necessity of conserving space in the corridors and ramps leading to the upper bleacher seating, the designers could not follow the normal practice of carrying outer ends of bleacher stringers on concrete columns. They had to devise a way to connect rigid bleacher framing to the long-span steel frames and yet permit the frames to move with loading and temperature changes. Their solution is a link hanger that allows ample movement without undue stresses (see sketch).

This type hanger supports both the upper bleacher framing and mezzanine floor beams.

Permanent seating will consist of



DIAMOND CABLE TRUSS in a horizontal plane between the lifting frames added rigidity during hoisting of a rafter.



RAFTER for a rigid frame was transported in three sections on wheeled towers to the hoisting position. After the sections were welded together, H-beam lifting frames were attached to keep the rafter vertical during hoisting.

. . . coliseum with large unobstructed arena

individual wood seats bolted to the bleacher risers.

• **Lightweight roof**—The rigid frames are designed to carry a dead and live roof load of 46 psf. The roof consists of 4-in. thick precast perlite-concrete slabs, which are supported on 12-in. purlins at 6-ft intervals. (Precast perlite concrete was chosen for ease and rapidity of erection, appearance and combined insulation, strength and acoustical properties. The underside of the slabs is to be left exposed and unpainted).

Design moments, shears and reactions were calculated for uniform dead and live load over the entire span, for wind loads, for bleacher and mezzanine floor loads, for temperature changes and for a concentrated load at midspan. These stresses then were combined logically to obtain maximums.

• **Built-up sections form frames**—The frames are built up entirely of plates, both shop connections and field splices being welded. For delivery to the site, each frame was fabricated in five sections—two columns; two rafters, each about 80 ft long; and a crown.

Column sections are composed of a 55x⅝-in. web and 18x2¼-in. flanges. Rafters and crown have a 72x⅝-in. web and 18x1½-in. flanges.

The haunch at the knee is curved to a 21-ft radius. Critical point in the frame from the design viewpoint, the knee is 12 ft 3 in. deep at the deepest section and braced laterally for stability.

At the crown, the bottom flange is curved to a 50-ft radius, providing a maximum depth at midspan of 8 ft 3 in. This section, too, is braced laterally for stability.

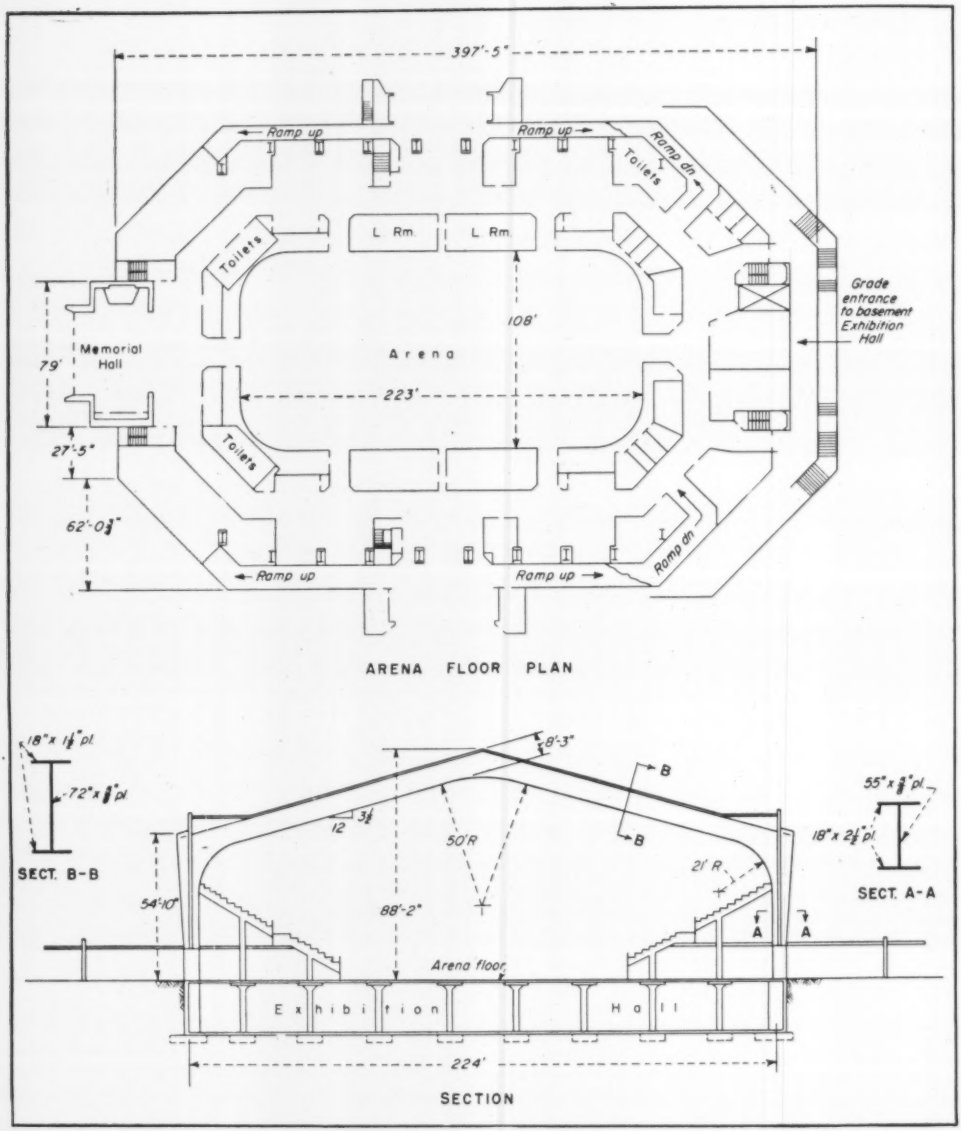
Intermediate vertical bracing is spaced 30 ft apart along the span. Horizontal bracing is located in alternate bays.

• **Moving towers aid erection**—In the fabrication shop, each of the five sections of a frame was held in a jig, while flanges were attached to webs with continuous welds. Shop welding was done with an automatic machine by the submerged-arc process.

At the site, many problems had to be solved: (1) How to erect the frames, which weighed 68 tons apiece, over a slab limited to a 330-psf live load? (2) How to weld dovetail field splices (flange splices offset from web splices)? (3) Where to place hoisting equipment? (4) What assembly procedure to follow to hold the alignment of rafter sections for field welding, and what welding procedure for field splices to eliminate distortion?

Erectors came up with this solution: First, column sections were erected. They were set on 36x76-in. concrete piers. These had a 6-in. deep pocket on top for shimming and grouting the frame base. (Although the frames were designed for hinged bases, no provision was made for positive hinge action. Since dead load is superimposed before bases are grouted, the designers assume that later rotations of the base will be so slight that expensive hinge details are unnecessary. Also, because of the length of the columns, these members are sufficiently flexible to permit the knees to rotate).

After the columns for a frame were in place and plumbed, the erectors laid a track on the arena-floor slab between the last completed bent and the one to be erected. Consisting of two 10-in. I-beams, 12 ft on centers, the track extended the full width of the building and projected into a loading area. On the track were placed three sets of wheeled towers for transporting the rafter and crown sections



COLISEUM—a war memorial—was designed for many types of events—sports, fairs, cattle shows. It can seat about 11,000 people.

of a frame to the hoisting position.

The towers were built up by welding 2x2x¼-in. angles. At the top, each contained stiffened uprights with both horizontal and vertical screw jacks, for holding and adjusting frame components prior to welding field splices (see sketch). These towers were designed to carry the rafter and crown sections in the same relative positions they occupy in the rigid frame, so that these members could be spliced while supported on the tower. Also, the towers were located to meet requirements of the hoisting equipment.

It was especially important that the frame components be hoisted in a vertical plane. To obtain this objective, the erectors attached a rigid H-beam lifting frame to the rafters at two points. Extending slightly above level of the peak of the rigid frame, this device kept the center of gravity below the pivoted point of support. This caused the steel to maintain a vertical position during erection and also overcame any tendency for the frame to rock sideways.

The erectors employed a diamond-shaped cable truss to brace the H-beam lifting frames. This prevented undue flexing, or whip, of the steel when it was raised.

• **Gin-pole erection**—To maintain an efficient production sequence in erec-

tion of the frames, two 120-ft gin poles were arranged so that they could be boomed up or down, like a derrick boom.

This permitted wheeled towers and track to be shifted to the next bay without interfering with the gin poles while the latter supported the rafters during welding of rafter-column splices and erection of bracing.

When the steel was lifted off the towers, gin poles were boomed down about 42 ft from the vertical. With the load hanging in midair, they were boomed up to about 27 ft from the vertical. Then, the rafters were hoisted straight up and spliced to the columns.

• **Welding sequences**—At each field splice, an interposed stiffener plate 16x¾ in., extending the full depth of the web, was butted against the end of a web and fillet welded to it in the shop to form a T joint. Also, two pairs of temporary lug angles, to hold the members in alignment during field welding, were shop welded to the web to be attached. Located near the top and bottom of this web, these angles were placed with outstanding legs flush with the end of the web. Each angle had four holes for pinning and field bolting to the interposed stiffener plate. The field splice was made by fillet welding the web with the lug angles to the plate.

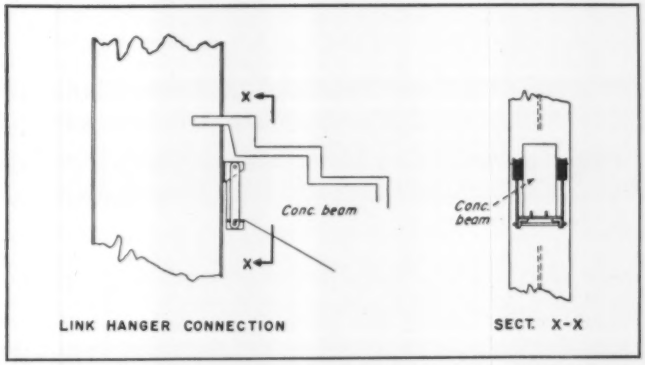
Two welders, working on opposite sides of the joint, spliced each rafter section to the crown section. To keep distortion to a minimum, they duplicated their welds as closely as possible. Eight to ten man-hours were required for each connection.

Two welders worked in the same manner on the rafter-column splices. For each of these connections, 18 to 20 man-hours were required.

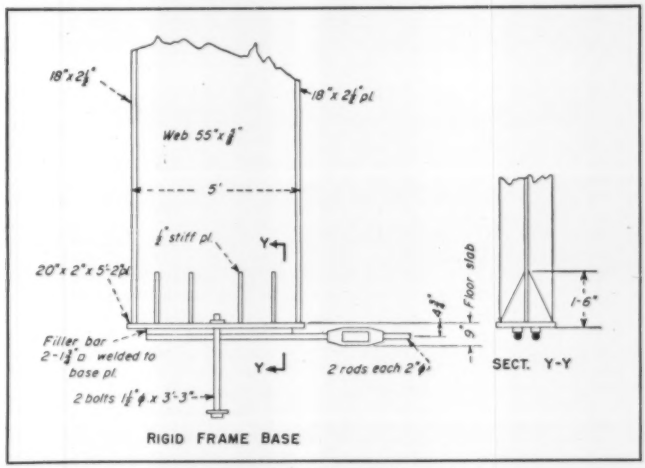
First, the welders laid intermittent 6-in. welds at 6-in. intervals along a web splice. Next, the web was tack welded to the flanges near the flange splices, which are offset from the web splice. These tack welds were to hold the flanges and web in alignment while the heavy weld required for the flange splices was made. Flanges were welded in several passes and with three different size electrodes—two passes with a 5/32-in. electrode, three passes with a 7/32-in. electrode and finishing passes with a ¼-in. electrode.

Then, the web splice was completed. A 5/32-in. electrode was used for both the intermittent welds and a pass the full depth of the web. A 7/32-in. electrode was employed for finishing passes. Finally, the 12-in. lengths of web at the flanges were welded, following the procedure used for the web splice.

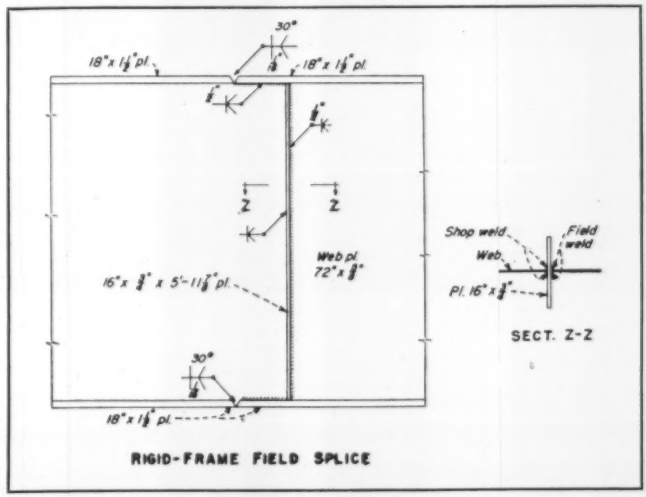
An attendant was on constant duty at the welding machines to make the



BLEACHER STRINGERS are supported on link hangers at the rigid frames.



TIE RODS connect the bases of each rigid frame and carry the thrust.



DOVETAIL SPLICE, with an interposed stiffener plate, was field welded.

frequent changes necessary in current and voltage settings to correspond with the various electrodes.

• **Frame bases tied**—The rigid frames are tied at the base with two 2-in. dia tie rods. These have upset threaded ends for turnbuckles. To prevent the rods from bonding to the concrete arena-floor slab, the erectors greased and wrapped them with sisal paper.

Twenty-foot lengths were field welded together to form the tie rods. They were accurately positioned on the floor formwork to be at mid-depth of the slab. At splices, they were raised slightly, so that shrinkage on the top side due to cooling of the welds would draw them back to a straight line.

• **Costs**—Best erection time for one frame was three working days. This required good weather, whereas during the erection period much bad weather was encountered. The structural steel was largely put up in very cold weather.

A study of actual costs, with an allowance for normal profits, indicates that the long-span rigid frames could be erected for about $3,400 per frame, or $50 per ton. Total structural steel tonnage was 1,246, which cost $230,000 delivered.

Fort Wayne Structural Steel Co., located about 1¼ mi from the site, fabricated the steel. All shop and field welding was done by qualified welders.

Pittsburgh Testing Laboratory supervised the qualification tests, inspected fabrication and erection, and cooperated with the steel erector in developing welding procedures.

Hagerman Construction Co. holds the general contract for $1,925,931. Martin Erecting Co. was awarded a subcontract for steel erection but subcontracted erection of the rigid frames and bracing to Machinery Company of Bowling Green, Ky. T. H. Covington, president of the latter firm, devised the method of erection used and supervised the work.

Other subcontracts awarded: $173,209 for electrical work and $340,504 for plumbing and heating. Equipment purchased separately: portable basketball backstops, $1,750; platforms for temporary grandstand seats, $31,722; and 2,700 folding chairs at from $3.17 to $9.85 each.

A. M. Strauss, Inc., architects-engineers of Fort Wayne, Ind., designed the Allen County War Memorial Coliseum. The author, chief engineer of this company, designed the rigid frames.

Notes on legal decisions

Summaries of decisions relating to construction work prepared by I. Vernon Werbin, counselor at law and engineer, New York, author of Legal Phases of Construction Contracts (McGraw-Hill Book Co.)

Obstructing highways

An individual who is responsible for leaving a vehicle in the way at such a time or place, or under such circumstances as unreasonably and unnecessarily obstructs public travel is liable for injuries sustained as a result of obstructing such highway.[1]

The immunity of a county or state, on grounds of public policy, from liability for personal injuries caused by defects in a highway, does not protect an independent contractor from liability for negligence in the manner of performing a highway contract.

A contractor doing construction work on a highway is responsible for creating a dangerous condition on the highway and failing to give warning thereof, resulting in injuries to a traveler.[2]

The primary duty rests on a highway contractor to exercise reasonable care for the safety of the general public while it is traveling over a road on which he is working. He may be held responsible for damage resulting from negligence in connection with defects and obstructions in the highway.

To recover against the highway contractor, the person injured must show both that there was failure to exercise proper care in the performance of some legal duty and that such negligent breach of duty was the proximate cause of the damage.[3]

A passenger in an automobile brought action against a general contractor and his subcontractor who were engaged in doing some work on a public highway to recover damages sustained as a result of the automobile striking a road machine that was left on the highway on a dark misty night. They were charged with having left the machine without any warning signs or adequate lights being placed on it and with having failed to guard the equipment properly so as not to imperil travelers.[4]

The injured party obtained a judgment both against the general contractor and the subcontractor.[5] The judgment was sustained on appeal, the appellate court stating in its opinion: "When one undertakes work in a public highway which, unless carefully done, will create conditions which are dangerous to members of the public using the highway he is under a duty to use requisite care. That duty cannot be delegated."

In another case[5] a recovery was had for injuries that resulted in the death of a guest in an automobile that crashed into an unlighted broken-down truck of the contractor. The contractor sought to avoid liability on the ground that under the laws of North Carolina, where the accident happened, the State Highway Commission has the right to close a road when construction work is being done thereon and that in the instant case, when the accident took place, the road had been closed to traffic. The evidence offered at the trial indicated that while at the time of the accident an order was in effect barring traffic, nevertheless, part of the road had been concreted and was being traversed habitually by so many people that the contractor could not possibly have been ignorant of the fact that the road was being used. Under such circumstances, the court held that it was negligence on the part of the contractor to leave his truck unlighted on that part of the highway that actually was being used in spite of the order barring traffic.

(1) 25 Am. Jur. p. 772.
(2) 69 A.L.R. 482 and numerous cases there cited.
(3) 40 C.J.S. pp. 288-289.
(4) Osgood v D. W. Winkelman Co., et al., 274 App. Div. 694, 87 N.Y.S. 2d 110.
(5) Thompson Caldwell Const. Co. v Young, 294 F. 145.

Maximum cost of work

Where the contract does not set forth any specific price for doing the work but does set forth a definite sum as its maximum cost, the contractor is not entitled to compensation in excess of the specified maximum cost.[1]

The court in its opinion referred to another case[2] where a building contractor entered into a contract for the making of certain alterations and improvements upon a house. The contract was indefinite as to price but provided that the cost would not exceed $1,500. The court allowed the contractor a recovery for the reasonable value of the work done and materials furnished, but such recovery was restricted within the limit of the maximum sum of $1,500 set forth in the contract.

(1) Higby v Hooper, 221 P.2d 1043, Supreme Court of Montana, Aug. 28, 1950, citing 17 C.J.S., Contracts, section 367, pp. 826, 827, notes 70, 71 and 74.
(2) Kennedy v McKone, 10 App. Div. 88, 41 N.Y.S. 782.

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*The New Orleans Veterans Administration Hospital being constructed by the New Orleans, District of the Corps of Engineers under District Engineer Col. Chas. G. Holle. Favrot, Reed, Mathes & Bergman of New Orleans and Faulkner, Kingsbury & Stenhouse of Washington, D.C. are the architects.

This new 10-story VA hospital is being built at a cost of approximately $9,000,000. Work got under way in September 1949 and is scheduled for completion sometime in January 1952.

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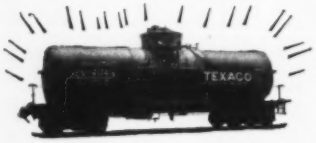

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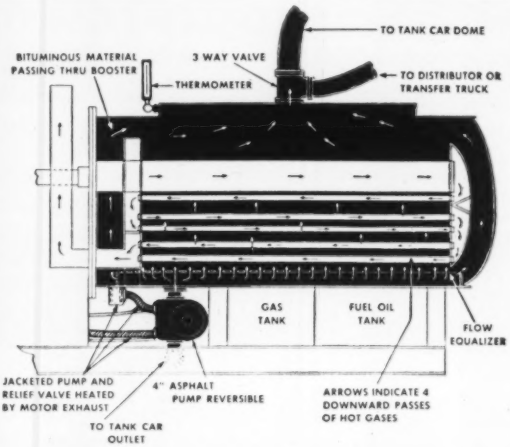
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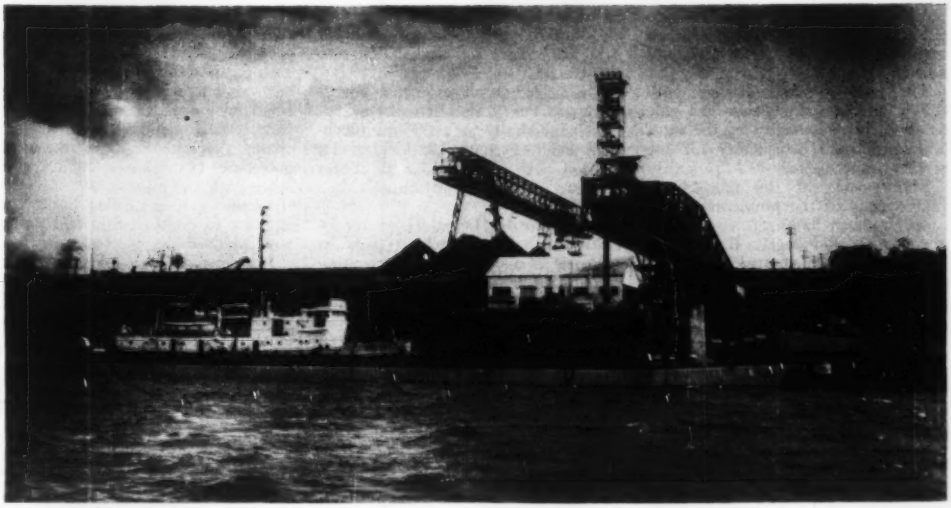


A problem: Load ore where river rises 43 ft

Bethlehem moves first Venezuelan iron ore

CONSTRUCTION FOR STEEL—Because expansion of America's steel-making capacity occupies a substantial part of the construction picture today, Engineering News-Record is presenting a series of articles on construction problems incidental to that expansion. This is the first article of the series—Editor

FIELD WORK stretching over 14 years lay behind the first delivery of Venezuelan iron ore to the Bethlehem Steel Co. plant at Sparrows Point, Md., this spring.

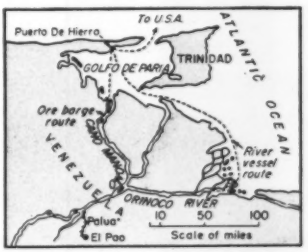
Sites of the field work were the shores of Golfo de Paria and an area of jungle extending from the Orinoco River 30 mi. southward to ore deposits owned by the Bethlehem-organized Iron Mines Co. of Venezuela.

A general survey, begun in 1937, resulted in a plan to truck ore to a crushing plant and loading point at the El Pao mine (open pit), carry the ore by rail to Palua, on the Orinoco, and ship it by water to an ocean point to be selected on Golfo de Paria.

Construction inland began in 1941. Interrupted by the war, it resumed afterwards. Meanwhile in 1947 the Puerto de Hierro (Port of Iron) site was selected for the ocean transshipment point. All construction was substantially complete by the end of 1950.

• **Orinoco wharf was key**—Building and maintaining transportation routes in the jungles involved special problems for Bethlehem engineers, as did finding and developing a suitable seaport. But one of the toughest parts of the whole ore-movement problem was coping with a 43-ft river-level fluctuation at Palua.

At any level within this range 6,000-ton river boats and 4,000-ton barges had to be loaded with iron ore. How this key problem—building a wharf for these conditions—was licked is detailed on the next page.



NEW FOREIGN ORE for Bethlehem Steel Co. comes from El Pao, via railroad to Palua, then down Orinoco River to tidewater and to Puerto de Hierro, for trans-shipment to the United States.

• **Access to El Pao**—Palua also was the site of initial field work for construction. Workmen established a camp and built a 50-ton capacity stiffleg derrick on the river bank, for unloading cargo from river vessels. Next they built a 30-mi, two-lane gravel road to El Pao. When this was completed in 1944, work began on the mining camp and on the 35-mi mine-to-river railroad.

• **At the mine**—The deposit at El Pao is hard ore, lying in a bowl-shaped formation about 2,600 ft long and 1,700 ft wide, on top of a hill rising several hundred feet above surrounding country.

Four-yard shovels load blasted ore into 30-ton side-dump semi-trailer trucks that travel about a mile down an 8% grade to a crushing plant. Here, crushed ore goes into 70-ton hopper-bottom railroad cars.

At the full production rate of 3,000,000 tons annually, four 30-car trains will make the trip to Palua daily.

In the 35-mi trip, trains descend 1,600 ft. Maximum grade is 2%, which calls for a lot of braking. This

is done by regenerating power through the electric-drive motors and dissipating the energy through resistors. Trips take two hours.

The track is standard gage, with 100-lb rails. Imported creosoted pine ties have been found to be the most economical and satisfactory for use in the tropics.

Maintenance of the railroad includes many of the problems usually encountered in temperate zones. One is clearance of foliage. But in this Venezuelan back country it's no occasional weed-burning or grass-cutting. It's a continuous fight between a full-time gang of machete-wielders and the ever-growing jungle. Weed-killers also are being tried. The rail line is kept clear, of course.

• **At Palua**—At the line's lower end, cars discharge from a trestle into a 550x43-ft pocket blasted from rock. A belt in a tunnel beneath reclaims the ore and conveys it to another conveyor riding on a structure that cantilevers over the ore-vessel pier. Ore also can be stockpiled, with the aid of a 320-ft span ore bridge alongside the trestle.

Ore loaded on barges or river vessels travels to Puerto de Hierro by a 230-mi (barge draft) or a 395-mi (deep-draft channel) route. Bethlehem has charted both routes and both routes are marked with navigation aids.

• **At Puerto de Hierro**—Tidewater facilities include a 660x80-ft pier, an onshore storage pocket, a reclaiming tunnel and an adjacent 1,200,000-ton storage area served by a 320-ft span ore bridge. A system of unloaders, conveyors and loaders takes ore from river vessels on one side of the pier, moves it to storage on land and reclaims it for loading on ocean vessels on the other side of the pier.

Ground at Puerto de Hierro is mud underlain by sand, which is good for 100-ton bearing on 14-in. 102-lb H-piles. The port area was dredged to 42-ft depth prior to construction.

Floating wharf solves problem

A triumph of design is the ore loading wharf at Palua.

At this point the Orinoco River is three miles wide. The rocky shore slopes upward at 1 on 4 from a relatively level sand bottom that is 37 ft below low water. High water, occurring from April to November, can be as much as 43 ft above low. Maximum current is 3 mph (similar to the tide in Hudson River).

Two types of vessels are loaded at Palua: 4,000-ton barges with 14-ft loaded draft; and 8,500-ton river steamships with 18-ft loaded draft.

To provide ore loading service throughout the 43-ft river range, Bethlehem engineers adopted a floating wharf, located in deep water.

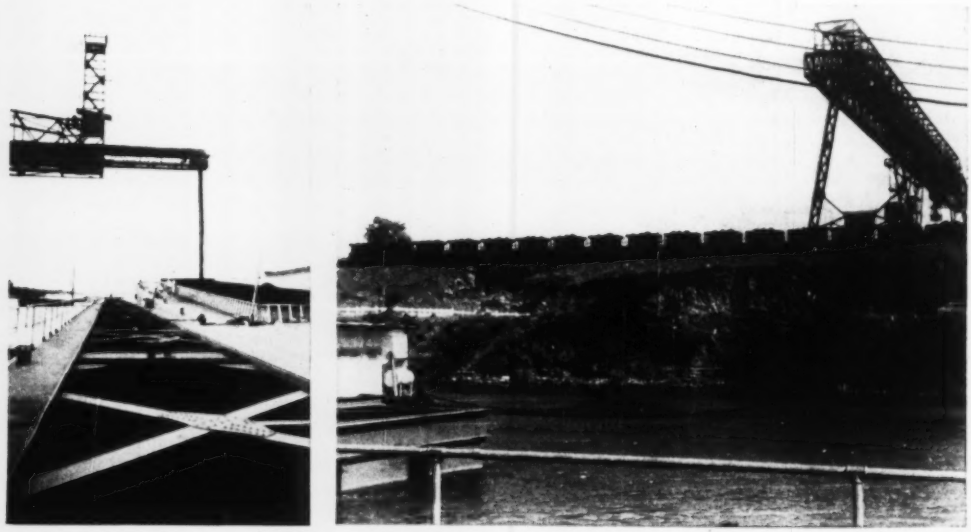
• **Chain mooring**—The problem then was to design a stable mooring, preferably one that would not require constant adjustment as water level changed. Chains were the answer. Two outshore and two inshore chains, both anchored at right angles to the wharf, would maintain wharf position parallel to the shore. Two diagonal chains, anchored shoreward, would overcome the wharf's tendency to move with the current.

Chains were preloaded to 50 tons in order to establish firm and permanent hold of the outstream anchors.

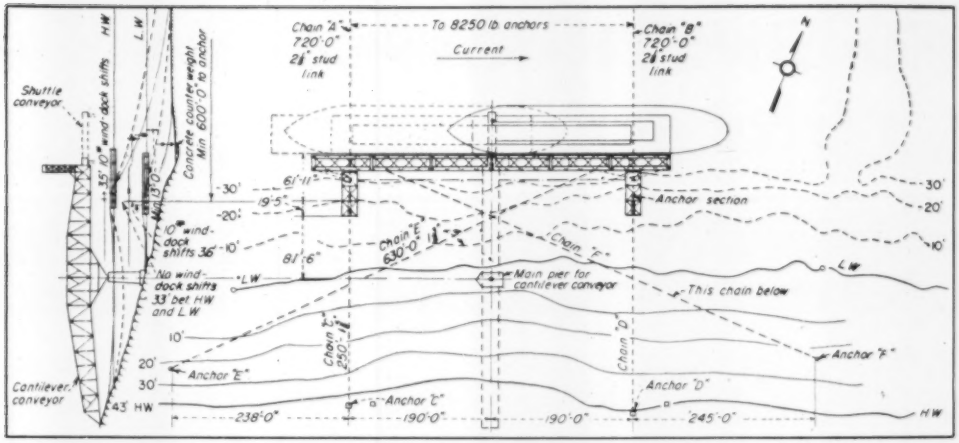
Inshore right-angle anchorages were to be well above low water. (Outshore anchors would be on river bottom.) Thus the wharf itself would remain practically at constant distance from anchors, and the wharf's stability would not vary. A high ratio of chain length to river-stage range further assured constant stability.

• **Chains clear vessels**—The mooring arrangement is illustrated by the accompanying drawing. To provide clearance between the outshore chains and the vessels alongside the wharf, designers did two things: They provided inshore anchorage sections where the chains could be secured well back from the fender line; and they counterweighted the chains outshore from the fender line.

• **Pontoons buoy wharf**—Plan dimensions of the wharf proper are 480x20 ft. It is articulated, consisting of 80x20-ft sections, each of which floats on four steel pontoons 20x7½ ft, 4½ ft deep. The main structure in a section is a four-panel truss in a hori-



ORINOCO RIVER conditions made this pontoon wharf necessary. Anchor chains tie in on anchor sections, 62 ft back of fender line, to furnish clearance for ore vessels. Cantilevered conveyor with adjustable-length chute loads vessels.



ANCHOR CHAIN LAYOUT—assures floating-wharf stability throughout 43-ft river range, at same time giving ample draft clearance for docked vessels, as shown by cross-section at left.

zontal plane at deck level. All truss members are 24 in. deep, with webs vertical.

Six-inch pins connect the sections at their chords, providing ample shear and horizontal moment transfer.

The 60x20-ft anchor sections are similar in structure to the main sections, but the four pontoons of the anchor sections underlie only the inshore two of the three panels. The inshore panel, whose two pontoons lie in a transverse position, carries a saddle and clamp arrangement for the right-angle anchor chains. Saddle point for the outshore chains is 62 ft back from the fender line. Pontoons of the mid-panel are longitudinal so the outshore chain can sag between them. Anchor sections are pin-connected to the main wharf.

• **Construction**—Structural steel for each 48-ton section (complete with pontoons) was assembled and riveted on shore under the boom of the 50-ton stiffleg derrick. As each was completed it was lowered to the river, for assembly with a successive section.

The upstream anchor section was first, being anchored in place temporarily. Permanent anchor chains were attached next, the first being chain "C" to a shore deadman.

To attach chain "A" a 10-ton derrick barge set a 4-ton one-arm stock anchor on the chain "A" line 90 ft beyond designed final position (with aid of transits on shore), played out the chain to deliver it to the pontoon section.

Here, two-part lines from two tractor winches on shore hauled the chain until the anchor was set against a 50-ton pull (within the extra 90 ft). This was a prestress against anticipated wind and impact loads on the wharf. Computation and model tests showed that 50-ton pull existed when chain tangent at saddle was slightly more than ten degrees from the horizontal.

Next, winches slacked off to make the angle 21-24 deg from horizontal and workmen temporarily clamped the chain to the floating anchor section.

The process was repeated for the downstream anchor, then assembly of the wharf proper, aided by the derrick barge, proceeded. Diagonal chains were connected to shore deadmen when assembly was complete.

• **Counterweight installation** — The final operation consisted of attaching the counterweights and adjusting pulls of chains "A" and "B" to give proper fenderline draft clearance. Made with iron-ore aggregates, the 9-ton concrete counterweights weighed 6 tons in water. A counterweight swung from the front end of the derrick barge while the derrick fished up the chain. Workmen attached the weight to a point on the chain 18 ft from the fenderline and freed the weight, allowing the derrick to lower it toward the bottom.

Final adjustment of right-angle chains was made by block and tackle pulling between "A" and "C", and between "B" and "D". When counterweights were at correct depth for existing river and wind conditions, chain clamps were fixed for the last time.

• **Performance**—The drawing shows how drafts and wharf positions change with varying river levels. Minimum draft at counterweight is 13 ft, when water is low and there is a 50-mph wind component normal to the fender line. (Higher winds quarter.) Wharf shifts 3½ ft horizontally between low and high water (no wind) and another 3½ ft horizontally under extreme wind conditions (6,000-ton ship, light, moored to put wind load on one chain).

The superstructure truss was designed to take twice the above wind-loading condition. It has enough lateral and torsional strength to stand submergence locally of the pontoons, a condition that could be caused by a barge colliding with the wharf and riding up on it. A 26-ton load at the center is required to submerge one pontoon.

• **Maintenance** — Pontoon maintenance is simple. Workmen unbolt the float at four points, partly flood the middle of three compartments (so the pontoon will clear the superstructure) and float the pontoon to the stiffleg derrick for hoisting to dry land. The superstructure is maintained in place.

• **Operation** — Mechanical equipment on the wharf consists of two electric winches, for moving ore vessels along the fender line as the cantilever conveyor drops ore into the holds. The conveyor operator, in his cab on the cantilever, controls the winches.

Although the cantilever is a fixed structure, it has a shuttle conveyor that extends as much as 60 ft to reach the far parts of the hold beneath it. In addition, there is an adjustable-length ore chute at the shuttle conveyor's discharge end. Adjustment of this chute is the final device for coping with the Orinoco's 43-ft range.

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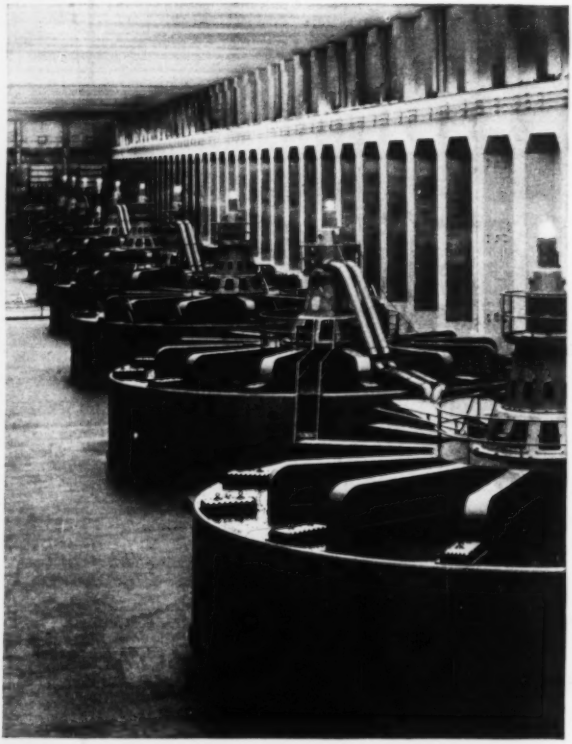

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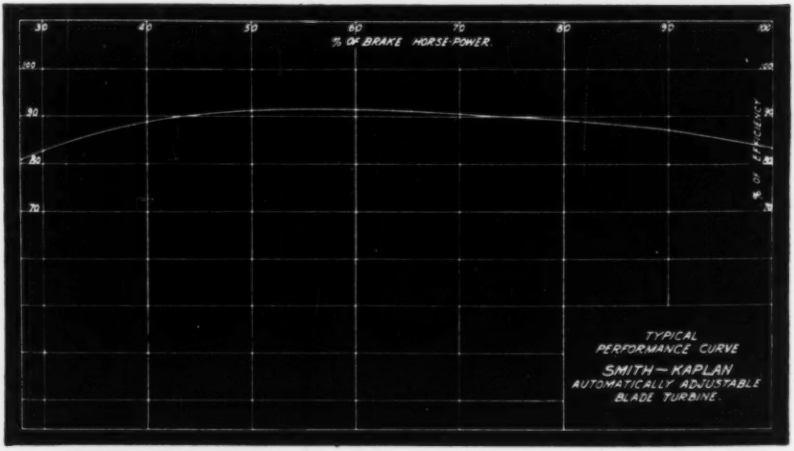

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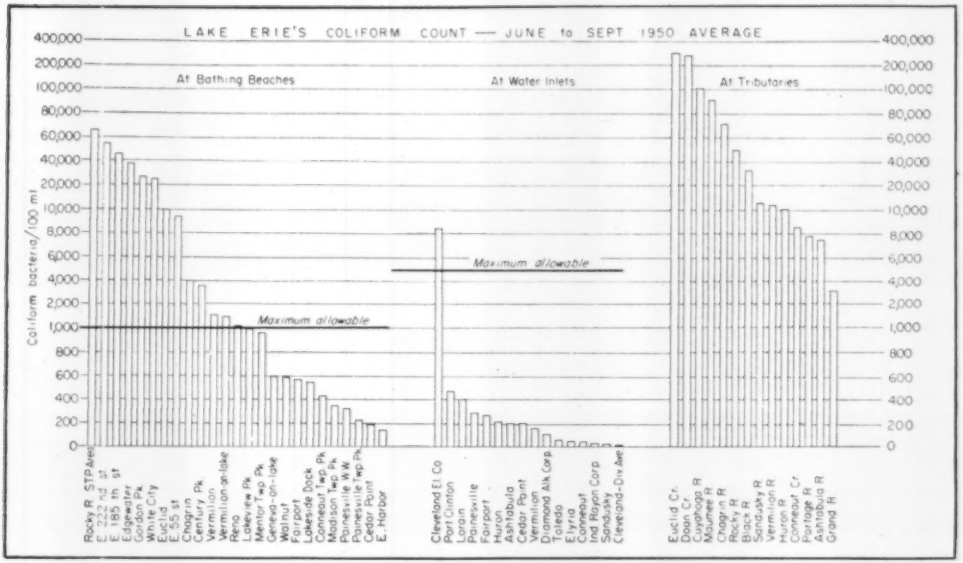


BEYOND SAFE LIMITS—Pollution makes swimming hazardous. An industry gets a foul supply. Tributaries pour in the bacteria.

Survey finds Lake Erie foul; Ohio lab to help in clean-up

OHIO'S NORTH SLOPE, too, has its pollution problems. While national attention focuses on the intensive effort to abate pollution in the industrially strategic Ohio River Basin, the Buckeye State pursues a less heralded survey of the 29% of its area, 42% of its population, helping pollute Lake Erie to the north.

So badly are Ohio tributaries polluting this smallest, shallowest of the Great Lakes that 17 of 25 bathing beaches sampled daily during last summer showed coliform counts above tolerated public health limits.

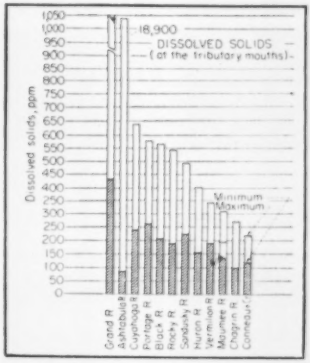
Lack of proper sewage treatment, inadequate collection facilities, overflowing storm sewers, toxic industrial wastes and eroded silt combine to contaminate Ohio's lake shore, according to an interim report of the Division of Water of the state's Department of Natural Resources.

• Halfway mark passed – Division Chief C. V. Youngquist wants another summer's findings for confirmation of general conclusions the year-old survey permits. Analysis—bacterial, chemical and physical—began early in 1950 with appropriation of $100,000 for the purpose by Ohio's General Assembly (ENR Aug. 10, 1950, p. 48). Recommendations for abating pollution have not yet resulted. But a picture of the pollution problem has evolved, and indications are that tests in a pilot plant planned for the Waste Treatment Laboratory of Ohio State University, Columbus, will figure heavily in abatement efforts.

• Dark picture—Survey findings to date spell out some serious pollution conditions—especially in the Cleveland area, where bathing waters are extremely poor, if not outright dangerous to public health. All of the several well-populated bathing areas in and around Cleveland are found in the report to be clearly unfit for the purpose.

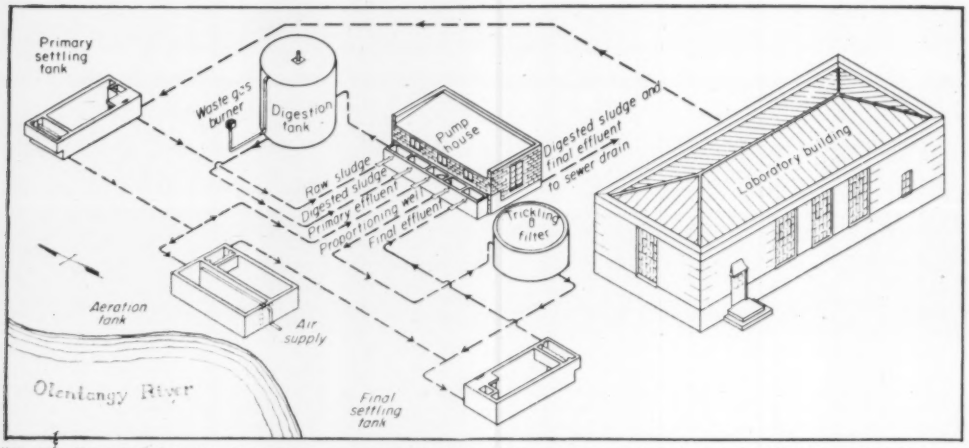
The bathing hazard is measured in coliform bacteria—intestinal tract inhabitants—1,000 coliform bacteria per 100 ml being the maximum allowable monthly average. Beaches in and near Cleveland were found to have coliform bacteria in their waters averaging over 100,000 per 100 ml in the worst month of last summer. Toledo's Reno Beach also got into the doubtful category with its count just over 1,000 in the worst month.

Such gross pollution generally comes to the shores of Lake Erie from its tributaries. And the two worst offenders of 22 tributaries surveyed are Euclid and Doan Creeks in the east end of Cleveland, each creek averaging about 300,000 coliforms per 100 ml during last summer—about 600,000 in the peak month. These streams are fed raw sewage from relief overflows of both Cleveland and Euclid sewerage systems.



INDUSTRIAL WASTES boost pollution.

The Cuyahoga River, passing through Akron before emptying into Lake Erie at Cleveland, averages about 100,000 per 100 ml thanks to untreated sewage from Cleveland's sewers that empty near the river's mouth. The Maumee, entering the lake at Toledo, picks up effluent of the city's primary treatment sewage works—and about 100,000 coliforms. Chagrin



TO AID IN ABATEMENT—Methods for correcting Lake Erie pollution will come from tests at this Ohio State pilot plant.

River, east of Cleveland, carries a 70,000-coliform pollution load into Lake Erie.

But not all the tributaries under study are so dangerously polluted. Indeed, several carry lighter coliform loads than do Edgewater Park, Gordon, White City and Euclid beaches in Cleveland.

The Cuyahoga and Maumee rivers measure up as grossly polluted by another test—that for biochemical oxygen demand. BOD (5 days) exceeds dissolved oxygen at the mouths of both these streams. At the Maumee there averaged 4.2 ppm DO last summer while the average 5-day BOD got to 6.5 ppm. On the Cuyahoga, BOD exceeded DO, 9.8 to 3.2.

• Supply intakes get test—Bacteria tests made at 16 water supply intakes in the lake showed that all raw water being pumped was safe on coliform content except in one case—an industrial supply for Cleveland Electric Illuminating Co. This one supply averaged 8,500 coliform bacteria per 100 ml June through September; all domestic supplies stayed under the generally accepted 5,000 limit on raw waters subject to conventional filtration treatment.

Turbidity—tough on fish and troublesome in water treatment—is a factor aggravated by Lake Erie's width and its winds. A sudden wind change across the great width of the lake can cause a setup amounting to 5 ft or more at the windward shore. Such lake level fluctuation causes erosion of shores, adding to the water's turbidity.

Tributaries, meanwhile, wash in and discharge their silt loads. The Maumee, worst offender, brings in as much as 200,000 tons of silt per month.

• Suspended and dissolved—Industry on this north slope of Ohio uses water at the rate of 3,600 mgd. And most of that not consumed in industrial processes eventually reaches Lake Erie—carrying a variety of chemical wastes.

Present physical and chemical studies go into water discharge and temperature, suspended and dissolved solids, color, hardness, pH, BOD, DO, cyanide, phenol and a long list of elements possibly in Lake Erie water. Recognition is given to the chronic poison possibilities in consuming waters carrying only trace quantities of toxic elements.

Chloride—a good evidence of pollution—reached 11,100 ppm last summer near the mouth of Grand River, east of Cleveland. (Sea water averages about 19,000 ppm.)

Dissolved solids in the Grand River totaled 18,900 ppm at maximum; the Ashtabula was next with about 1,000 ppm, and the Cuyahoga had under 650 at its worst. The Maumee was well down the dissolved solids scale with a peak just over 300 ppm. Dissolved solids at lake water intakes generally stayed between 150 and 300 ppm.

• Hope for the future—The same Ohio General Assembly that put up the money for this survey, now going into its second summer, authorized construction of a pilot plant for sewage treatment research at Ohio State.

A combined laboratory and pilot plant was estimated to have cost $50,000. But after work began on the lab it was found another $25,000 would be needed for the planned treatment facilities. Contract documents and plans for the sewage works await allocation of additional funds to the Water Resources Board, which is establishing the research facilities at the University.

Sewage for study will come out of a Columbus interceptor. Being fairly free of industrial wastes, it will be converted easily to any desired conditions by addition of proper elements. Pilot plant sludge and treated effluent will both go back into city sewers.

• To fit conditions—Versatility will be built into the treatment works. There will be alternates for biological treatment: an aeration tank or a trickling filter. And the rotary distributor on the circular trickling filter will have changeable orifices for adjustment to high-rate from standard filtration.

The aeration tank will be a standard two-pass rectangular unit. The sludge digestion tank will have a fixed concrete cover but will be easily convertible to a future floating cover. The plant is figured to treat 50 gpm.

Laboratory and pilot plant will both be available to cities, public health agencies and industries for research work by arrangement with the University's Research Foundation.

In addition to the interim report on the Lake Erie Pollution Survey, source of most of the above information, an article by W. D. Sheets in Ohio State's ENGINEERING EXPERIMENT STATION NEWS provided some information on research facilities.

Work on the Lake Erie survey is under the Division of Water, Ohio Department of Natural Resources. Also participating are the Division of Engineering, Ohio Department of Health, and the Franz Theodore Stone Laboratories, Put-in-Bay, Ohio. U. S. Geological Survey, U. S. Lake Survey, and U. S. Public Health Service have cooperated, as have city officials.

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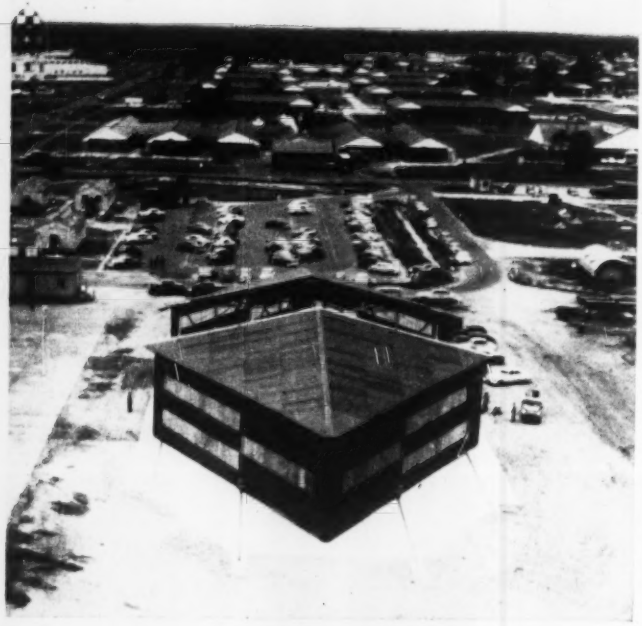
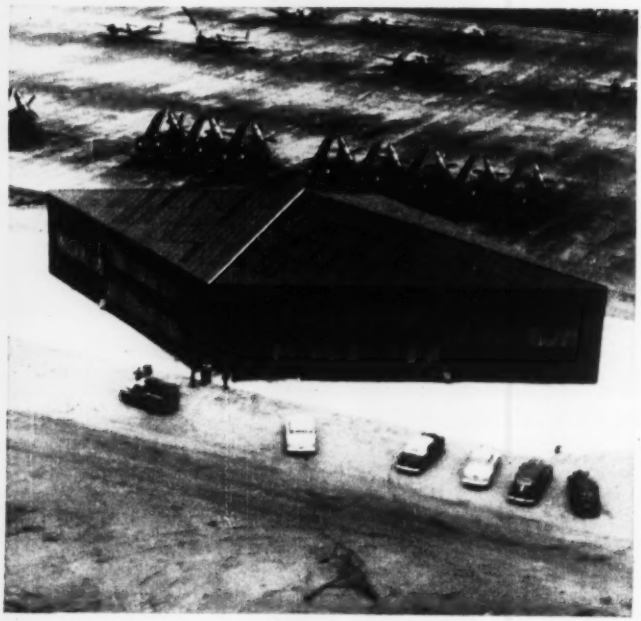


New Marine Corps hangar is open and shut case



FINISHING TOUCHES have been put on what is called the world's first "clamshell" hangar at the Marine Corps Air Station at Cherry Point, N. C. The structure, a diamond-shaped steel building, has no main doors. It admits an airplane by simply being split in half. The halves are pulled apart wide enough to admit the plane's wings inside the area. Then the hangar is pulled together and the plane can be serviced inside a complete enclosure.

Built by the Mitchell Mobile Hangar Corp. of New York City, the structure was completed at a cost of $80,950.

The hangar is actually rhombus when closed; opened, each half forms an equilateral triangle. The entire structure is built on 18-in. iron wheels that roll on railroad rails embedded in a reinforced concrete foundation.

Walls and roof are built of corrugated protected metal, over a light-steel trussed frame.

Translucent light green plastic in the walls allows light to enter the building. The concrete floor, varying in thickness from 6 to 8 in., is sloped from the center for drainage and has jet-fuel-resisting sealing material in joints.

• **Details**—The hangar is made up of two equilateral 100 ft. triangles. Rails permit a maximum separation of 172 ft. Building height is 29 ft. Each section is driven through two powered wheels by dual 3 hp. electric motors, either of which is powerful enough to do the whole moving job. Current may be applied from outside sources, or from self-contained motor generators. Speed of movement is 27 ft. per min. and total opening or closing time is 3 min. Thick rubber seals between the meeting surfaces make a totally water-proof seal, according to the designer.

Weight of the hangar is about 118 tons, not including the foundations. Control switches are located on a catwalk platform inside the building.

To "enter" or "leave" the hangar, aircraft simply taxi into place between the two open halves. Arrangements are made so that the tail section of larger planes can be left exposed while the major portion of the ship is enclosed.

Advantages claimed are that structure is easily demountable and could be moved from place to place as war or defense demands might require.

The basic design was perfected by John Mitchell of New York. Strobel & Salzman of New York City were consulting engineers; and Petroff & Clarkson, also of New York, were associate architects. Comdr. John J. Albers was naval officer in charge of construction.

BOOK REVIEWS

How to design a hospital

HOSPITALS: INTEGRATED DESIGN—Second Edition, by Isadore Rosenfield. 398 pp. Reinhold Publishing Corp., New York 18, N. Y. $15.00. The new edition contains over 500 plans and photographs, nearly half of which are new. Furthermore, addition of the latest information on hospital design necessitated resetting of the text. But in scope, the book is similar to the first edition.

A feature of the book is the great amount of background material it contains on medical practices affecting the design of hospitals. It discusses such techniques as prevention of cross infection and insulation of isotope rooms, electroencephalographs and high-voltage X-rays.

A chapter on construction, written in conjunction with Nicholas Farkas, consulting engineer, compares various types of construction and suggests methods of cutting costs. The authors see great possibilities in prefabrication and complain about the barriers to it presented by the lack of integration of building products. The building industry would do well, they claim, to spend even one-tenth the funds currently spent on individual development toward joint research in general integration of products.

New highway texts

HIGHWAY ENGINEERING—By L. J. Ritter, Jr. and R. J. Paquette. 721 pp. The Ronald Press Co., New York 10, N. Y. $6.50.

HIGHWAY DESIGN AND CONSTRUCTION—By Arthur G. Bruce and John Clarkson. 734 pp. International Textbook Co., Scranton 9, Pa. $7.25.

TECHNICAL ASPECTS OF THE DESIGN OF ROADS—By Stewart Champion. 232 pp. The Technical Press, Kingston Hill, Surrey, England. Price 30s.

Ritter and Paquette's book is the first completely new major text on highway engineering to appear since the publication of Hewes' American Highway Practice in 1942. It is designed as text for students in engineering schools, whereas Hewes' book was directed primarily to the practicing engineer.

The coverage of highway engineering is broad and well balanced. Subjects that generally will be met first by the young man going into highway work—traffic studies, testing highway materials and soil surveys—are well treated. Modern methods for the design of pavements summarized and appraised, and there is a section on construction equipment that should give the young engineer some familiarity with modern road-building methods.

John Clarkson, former chief of the design section in the Albany office of the Bureau of Public Roads, has joined with Arthur G. Bruce in a revision of Bruce's Highway Design and Construction. An unusually complete job of revision has been done. As a result, the third edition of this well-known book gives an up-to-date cross-section of current highway construction practice, except for a few antiques in the way of cuts that the publisher apparently did not want to discard.

Chief interest for American highway engineers in Stewart Champion's small book lies in discovering how design methods developed in this country, such as the CBR soil test, are creeping into British practice.

More on civil defense

CIVIL DEFENSE IN MODERN WAR—By Augustin M. Prentiss. 429 pp. McGraw-Hill Book Co., New York 18 and London. $6.00.

The subtitle of this book sums up its content—a text on the protection of the civil population against A-B-C warfare (Atomic-Bacterial-Chemical). The author's objective is to bring home to "every man, woman and child in the land that, despite the enormous increase in destructive power of air attack, there are ways and means effectively to counter such enemy action and enable the civil population to carry on their daily tasks in maintaining the nation's industrial economy and war effort."

All the available information on the destructive effect of high-explosive bombs and atomic blasts is summarized in sufficient detail for civil defense work. There also are a few paragraphs on the hydrogen bomb. Incidentally, the author believes that this country has more to fear from incendiary bombs than from high-explosive bombs because of the large amount of wood used in construction, even in large cities.

The author gives serious consideration to the possibility of the use of gas by a nation seeking a quick decision because of its greater coverage and psychological effect. This is on the assumption that bacterial warfare methods have not been developed to the point where they are more effective. The various kinds of bacterial agents that could be used are described herewith.

Parts II and III of the book are given over to civil defense measures and to the organization of civil defense forces. Included is a chapter on the protection of industrial plants.

Better use of statistics

STATISTICS FOR ECONOMICS AND BUSINESS—By Donald W. Paden and E. F. Lindquist. 276 pp. McGraw-Hill Book Co., New York 18 and London. $3.75.

This book provides, in the short space of 265 pages, a survey of basic principles and applications of statistics to economic and business studies. Written for ready understanding and rapid reading, it should appeal to the engineer who feels a need for better appreciation and more intelligent use of statistics in everyday problems. The emphasis is upon the end result rather than method.

Only the most common statistical techniques and methods of computation are demonstrated so as not to bog down the reader. The book thus deals with the hard core rather than the various degrees of sophistication, which would be of neither use nor interest to the individual reader. Readers need little more than high school algebra to follow the theory, the authors having cut to the bone the mathematical proofs and development of formulas. These are readily available from other sources.

A section of the book which could be stronger is that on index numbers. On the other hand, the chapters on correlation are excellent.

Notes on Pamphlets, Reprints and Educational Films

THE PART PLAYED BY HIGHWAYS in the national defense program is dramatized by color charts and diagrams in "Roads to National Security," a publication of the National Highway Users Conference, National Press Bldg., Washington 4, D. C. The booklet was prepared originally to demonstrate to key defense officials the need for keeping up an adequate flow of materials to highway construction and maintenance. It was so well received that the conference staff decided to print the information they had assembled in convenient booklet form. A price of 10¢ has been set for quantities under 100 and 8¢ for larger amounts.

FLOOD-CONTROL WORK of the Corps of Engineers in the lower Mississippi River valley is the subject of a

sound film in color, copies of which can be obtained on loan from the Mississippi River Commission, Box 80, Vicksburg, Miss. This film is entitled "Shackles for the Giant." It is 16-mm and runs for 25 minutes.

NEW SPECIFICATIONS for Concrete Pavements and Bases were approved by the American Concrete Institute at its meeting last February. Copies of them (ACI 617-51), bound in pamphlet form with paper covers, can be obtained for 50 cents each from the ACI office, 18263 W. McNichols Road, Detroit 19, Mich.

ANOTHER ACI SPECIFICATION adopted in revised form at the February meeting, Building Code Requirements for Reinforced Concrete (ACI 318-51), also can be obtained in pamphlet form from American Concrete Institute Office in Detroit for 50 cents. These specifications now incorporate provisions for deformed bars meeting the American Society for Testing Materials Specification A305. These bars are permitted higher bond stressed than were the old-type deformed bars (now considered plain bars). Bond stresses have been reduced for plain bars, which must be hooked.

QUESTIONS PUT TO SURVEYORS in civil service and registration examinations have been assembled in mimeographed form by Prof. Russell C. Brinker of Virginia Polytechnic Institute under the title, "1313 Review Questions for Surveyors." The book covers examinations given in six states. Copies can be obtained from R. C. Brinker, Box 323, Blacksburg, Va. for $2.00.

PROPERTIES OF FLOOR FINISHES are tabulated in a 28-page booklet, "Floor Finishes for Industrial Buildings," National Building Studies Special Report No. 11, obtainable from His Majesty's Stationery Office, London, England, for 40 cents. Most commercially available finishes are rated according to their resistance to wear and chemical action, slipperiness, quietness, warmth to touch, and ease of cleaning. Appendixes describe the construction of heavy-duty concrete floors and surface hardening of concrete floors.

Miscellaneous Notes

MANY HELPFUL SUGGESTIONS are contained in a 30-page booklet, "How to Prepare Your Plant for Atomic Attack," which may be obtained without charge from Walter Kidde & Co., Inc., Dept. A, 675 Main Street, Belleville 9, N. J. It proposes a plant defense organization, summarizes requirements for bomb shelters, tells how to minimize fire damage and outlines important considerations affecting building construction. The importance of drilling employees in emergency duties is strongly emphasized.

New Engineering Books

STATISTICS FOR ECONOMICS AND BUSINESS—By D. W. Paden & E. F. Lindquist. 276 pp. McGraw-Hill Book Co., New York 18 and London. $3.75.

THERMODYNAMICS OF FLUID FLOW—By Newman A. Hall. 278 pp. Prentice Hall, New York.

NEW LESSONS IN ARC WELDING—312 pp. The Lincoln Electric Co., Cleveland, Ohio. $1.00.

1950 SUPPLEMENT TO ASTM STANDARDS: Part 3—CEMENT, CONCRETE, CERAMICS, THERMAL INSULATION, ROAD MATERIALS, WATERPROOFING, SOILS—350 pp. American Society For Testing Materials, 1916 Race St., Philadelphia 3, Pa. $3.50.

PROCEEDINGS: AMERICAN SOCIETY FOR TESTING MATERIALS — Volume 50: 1950, 1,490 pp. American Society For Testing Materials, 1916 Race St., Philadelphia 3, Pa. $12.00.

PROCEEDINGS: NATIONAL CONFERENCE ON INDUSTRIAL HYDRAULICS: Vol. IV, 1950—Published by Conference, Technology Center, Chicago 16, Ill. $4.50.

WATER OF YOUR LIFE—By Arthur H. Carhart. 312 pp. J. B. Lippincott Co., Philadelphia and New York. $3.50.

CAMINOS—By Jose Luis Escario. 1,070 pp. Firmes De Carreteras Y Acropuertos, Madrid, Spain.

LES BARRAGES EN TERRE—By C. Mallet & J. Pacquant. 345 pp. Published by Eyrolles, Paris V, France. 2,500 Fr.

HOSPITALS: INTEGRATED DESIGN—By Isadore Rosenfield. Second Edition. Completely Revised: 398 pp. Reinhold Pub. Corp., 330 W. Forty-second St., New York 18, New York. $15.00.

TOOLS OF THE EARTHMOVER: Yesterday and Today: Preserved in Pictures—by J. L. Allhands. 362 pp. Sam Houston College Press, Sam Houston Teachers College, Huntsville, Texas. $5.00.

A NEW TECHNICAL DICTIONARY for the structural steel industry (English-German and Deutsch-Englisch) has been published by F. Eilers, Am Markt 11, Bielefeld, Germany (16.00 DM). Copies of all these Austrian and German books can be obtained through Stechart-Hafner, Inc., 31 East 10th St., New York 3, or European Periodicals Publicity and Advertising Co., 41-45 Neal St., London, W. C. 2, England.

RECENT GERMAN AND AUSTRIAN BOOKS of interest to civil engineers published by Springer-Verlag, Vienna 1, Austria, are as follows:

EINFUHRUNG IN WASSERBAU UND GRUNDBAU—by T. Schiffman ($11.50): TUNNEL-BAUGEOLOGIE, by Josef Stini ($8.80): EINFUHRUNG IN DIE BAUSTATIK, by Ernst Melan ($6.80): STOLLEN- UND TUNNELBAU—by Walter Zanoskar ($5.80): FLUSSMORPHOLOGIE UND FLUSSBAU—by F. Schaffernak ($3.60). Published recently by Wilhelm Ernst & Sohn, Berlin 1, Germany, are the following: DIE ZWEISEITIG GELAGERTE PLATTE—1 Band: Biegemomente und Durchbiegungen, by H. Olsen and F. Reinitzhuber, zweite Auflage (18.50 DM): BRUCKENBAUER DER REICHBAHN —by August Hertwig (17.50 DM): DIE GLEITSCHALUNG—by N. Drechsel (12.00 DM): MASSIVBOGEN UND VIADUKTE—by Hans Fiesinger (10.80 DM): EINFLUSSE AUF BETON UND STAHLBETON — by Adolf Kleinlogel, Funfte Auflage (28.00 DM): DER WASSERBAU AN DEN BINNENWASSERSTRASSEN—Teil I, Baukunde Zweite Auflage (16.50 DM): ABWASSER-HAUSKLARANLAGEN—by Wilhelm Teschner, Vierte Auflage (8.50 DM): BAU, UNTERHALTUNG UND VERTEIDIGUNG DER FLUSSDEICHE—by Ehlers Winkel, Dritte Auflage (5.00 DM): ANGEWANTE HYDROMECHANIK IM WASSERBAU—by Richard Winkel, Dritte Auflage (11.60 DM): DER RAMMPFAHL—by Wolfram Schenck (13.50 DM). Franz Deuticke, Vienna 1, Austria, has published FORTSCHRITTE IN STAHLBETON—by Rudolf Saliger ($3.20); and a third edition of DIE NEUN THEORIE DES STAHLBETONS auf Grund der Bildsamkeit vor dem Bruch, by the same author.

Reports and Pamphlets

SPECIAL OR BENEFIT ASSESSMENTS FOR PARKING FACILITIES—Technical Bulletin No. 15. Urban Land Institute, 1737 K St., N.W., Washington 6, D. C.

STRESS DISTRIBUTION IN A HOMOGENEOUS SOIL—Research Report No. 12-F. Highway Research Board, 2101 Constitution Ave., Washington, D. C.

DURABILITY OF CONCRETE: PHYSICAL REACTIONS—Bibliography No. 8. Highway Research Board, 2101 Constitution Ave., Washington, D. C. Price 60c.

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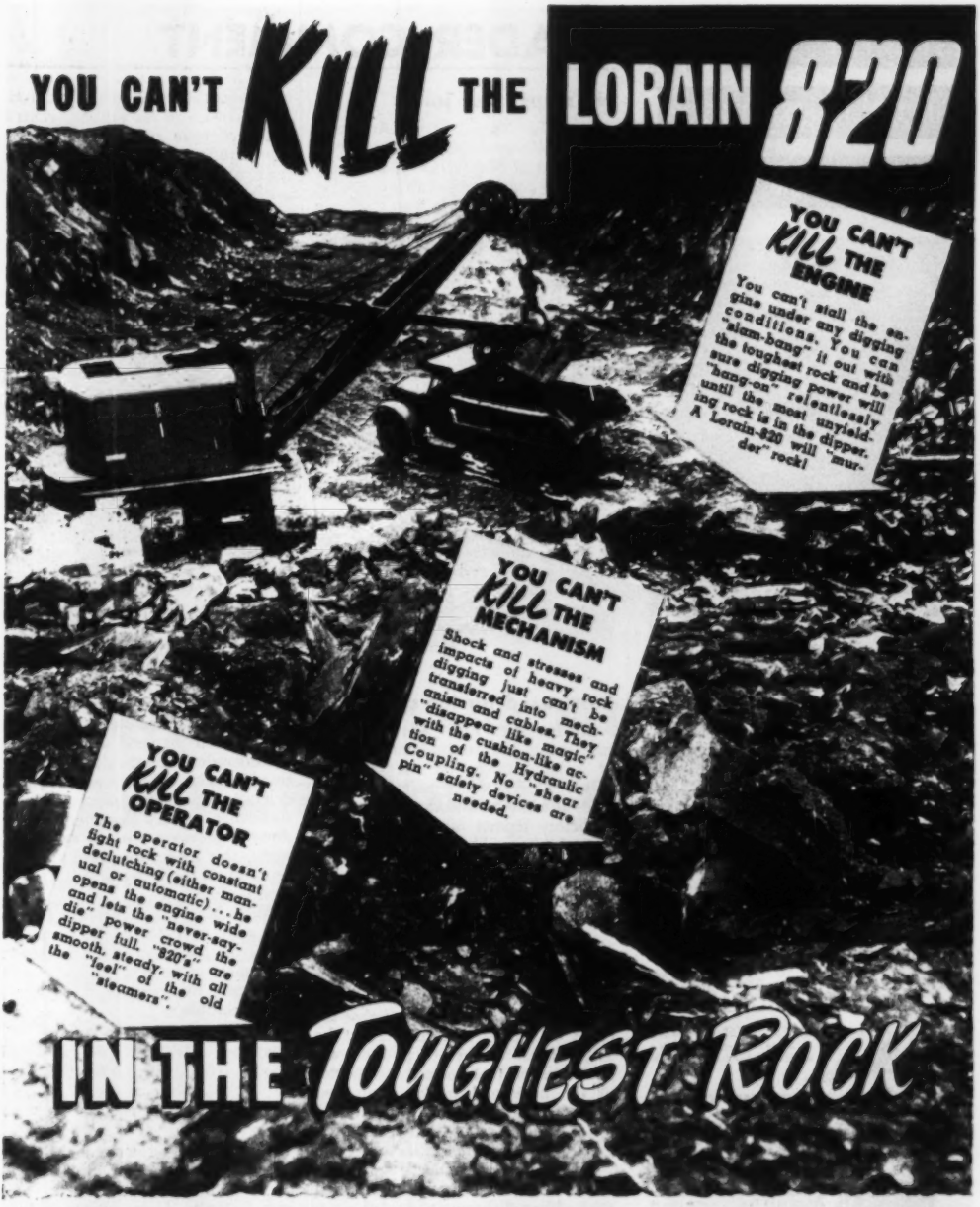
INVESTIGATION OF FAILURES OF WHITE-COAT PLASTER—Building Materials and Structures Report 121. National Bureau of Standards. Superintendent of Documents, Washington 25, D. C. Price 25c.

RESIDENTIAL MORTGAGE AND CONSTRUCTION FINANCING—Bureau of Business and Economic Research, University of Maryland, College Park, Md.

YOU CAN'T KILL THE LORAIN 820



YOU CAN'T KILL THE ENGINE

You can't stall the engine under any digging conditions. You can "slam-bang" it out with the toughest rock and be sure digging power will "hang-on" relentlessly until the most unyielding rock is in the dipper. A Lorain-820 will "murder" rock!

YOU CAN'T KILL THE MECHANISM

Shock and stresses and impacts of heavy rock digging just can't be transferred into mechanism and cables. They "disappear like magic" with the cushion-like action of the Hydraulic Coupling. No "shear pin" safety devices are needed.

YOU CAN'T KILL THE OPERATOR

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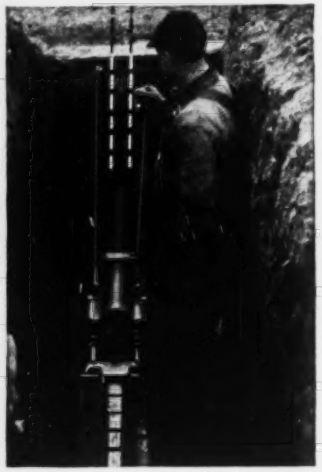

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No. 790 GREENLEE PUSHER For 3/4 to 4-inch pipe. Six Speeds—6,500 to 40,000 lbs. pushing pressure.

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READER COMMENT

No steps; just joints

Sir: The "steps" of the Anderson Ranch spillway shown on the cover of your issue of May 3, 1951, are likely to arouse considerable interest among hydraulic designers. It may therefore be as well to point out that actually there are no steps. The lines which create the optical illusion are contraction joints, accentuated by a depression of ½ in. in the floor on the downstream side of each joint, the floor being brought back to grade again in a distance of 6 in. These joints can be seen by a close inspection of the strip of dry concrete at the right side of the spillway (the reader's left). The dark band between this strip and the water is only wet concrete, not a vertical step; the floor of the chute is level normal to spillway center line.

The top of the opening through which the outlet valves, located underneath the spillway, discharge is visible at the upstream end of the quiet water in the foreground.

D. C. McConaughy
Bureau of Reclamation
Denver, Colorado

Salts used for ice control

Sir: Re article ENR, May 17, p 39, concerning the contradictory results of various studies on the corrosive effects of ice-control salts used on roads and streets, and the equally contradictory reports on the efficacy of rust inhibitors. The logical conclusion reached in the article is that further tests are needed which more closely simulate the conditions actually encountered by the automobile wheels and fenders, but with the degree of control and impartiality of laboratory experiments.

If further street or laboratory tests are conducted, it is suggested that the effect of adding a wetting agent be investigated. In the article, there was an indication that corrosion is greater at the body and fender joints and crevices. Corrosion experiments by W. L. Fons, of the California Forest and Range Experiment Station, U. S. Forest Service, in connection with use of "wet water" for fire fighting showed that adding dichromates to wet water prevented rusting in seams and joints as well as on flat surfaces. When the dichromate was added to plain water, rusting was reduced on flat surfaces but still occurred in the seams and corners. This would indicate that the lower surface tension of the wet water permitted a better penetration of the dichromate-treated water into the minute crevices at seams, joints, and rivets.

Since many or the wetting agents in powdered form are comparatively inexpensive it might be well to learn if their use, in conjunction with rust inhibitors, will help reduce the damage which is (or isn't) caused by the ice-control salts.

C. A. Davidson
Hydraulic Engineer
Berkeley, Calif.

Damodar plan origin

Sir: I have read "India's TVA" (ENR May 24, 1951, p. 33) with much interest. From my considerable personal knowledge of this project I believe that this article presents an adequate picture of the Damodar Valley project. However, in the paragraph in which you ascribe credit to the American personnel connected with the development, I observe what seems to me a rather notable omission.

The Damodar Valley development plan in its present form was the work of W. L. Voorduin who, prior to 1944, had been head of the Project Planning Section of the TVA. At that time he became the hydro-electric member of the Central Technical Power Board of India, with headquarters in Calcutta, and as such prepared a "Preliminary Memorandum" on the development of the Damodar, which was released in August 1945. While much work of a somewhat sporadic character had been done in previous years by other engineers, this report furnished the basic program for the active work now under construction.

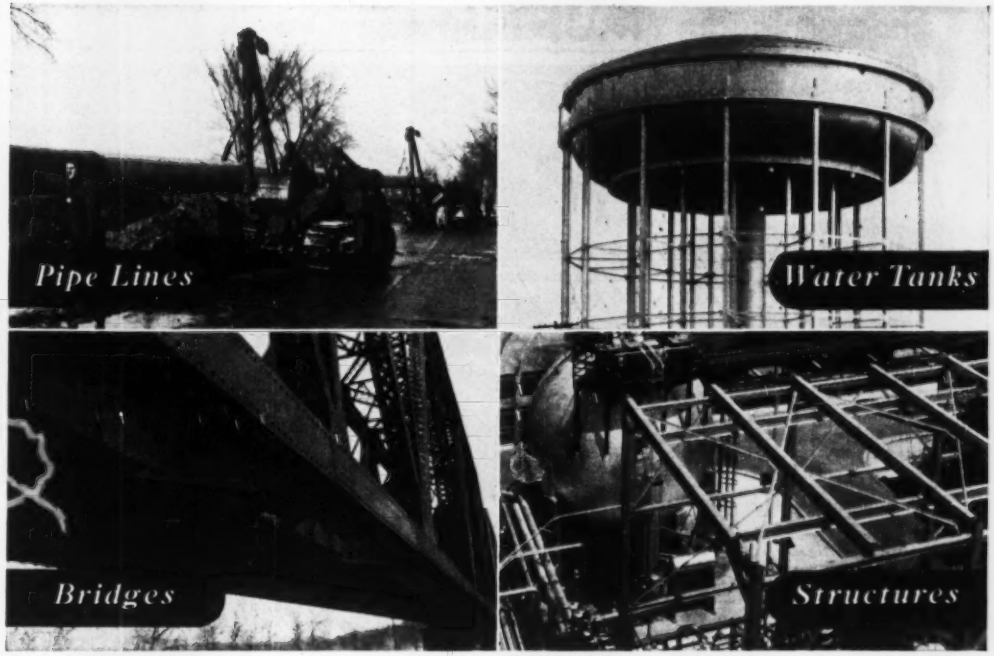
With Mr. F. C. Schlemmer I visited this work in 1946 for the purpose of supplying advice as to the further development of the program and came to appreciate the value of this study of Mr. Voorduin's.

Ross M. Riegel
Tennessee Valley Authority
Knoxville, Tenn.

Feet Not Hours

Sir: I have read with much interest the article (ENR Feb. 1, 1951) describing the work in connection with our Vaitarna Dam, which is being built to augment Bombay's water supply. On p. 41, in discussing the rock drilling with "coromant" bits, it is said that "Each rod lasts for about 800 hours." This should read "800 ft."

P. P. Dani
Construction Engineer
Vaitarna Dam
Bombay, India



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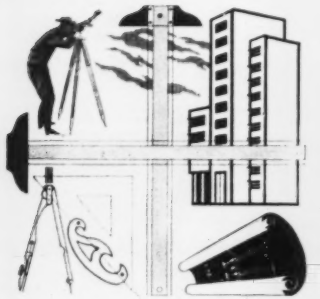

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MUNICIPAL

BUSINESS SECTION—This is the business section and part of the harbor of Halifax. The harbor is easily accessible at all seasons of the year, at all times of the tide, by ships of any tonnage.—N.F.B. photo

Halifax, Canada's largest eastern city, plans a great bridge over its harbor

Largest city in Canada's Atlantic coast provinces is Halifax, Nova Scotia, which today has an estimated population in its metropolitan area of 165,000. It is one of the world's greatest seaports, and is an important railway and industrial center. It is Canada's major east coast all-year seaport.

Halifax has almost doubled its population in the last decade, first increases having been noticeable during World War II when the seaport was used for shipping men and supplies to Europe. Since 1945 there has been a steady increase of population, attributed to increasing industrial and raw resources expansion in the interior of the Atlantic coast provinces.

The fine harbor of Halifax has brought it a great deal of shipping but also brought it one of the greatest disasters in history. On December 6, 1917, two ships collided at a pier as they were berthing, one a ship loaded with medical equipment and clothing for Belgium, the other a munitions ship laden with supplies for French troops. Both ships were waiting for a convoy across the submarine-infested north Atlantic. The munitions ship blew up within a few minutes of the collision, killing 1,600 people and laying waste about two square miles of Halifax and neighboring Dartmouth.

In the 33 years which have passed since that great disaster, Halifax has been completely rebuilt, and construction continues. Today the city has over 5¼ miles of berthing space for the ships of 36 ocean shipping companies which use the port. The largest liners can dock without tugs all along the terminals of the Canadian National Harbors Board. Nineteen transit sheds give over 1,000,000 sq ft of floor space. Tracks of two transcontinental railway systems run right to the water's edge at Halifax. There is a 2,000,000-bushel grain elevator on the waterfront which can load four ships at different berths at the same time and at the rate of about 75,000 bushels per hour. There is a 1,000,000-cu ft cold storage terminal served by eight railway tracks.

To expand transportation facilities

SECTION OF THE WATERFRONT—with the former ocean liner Aquitania at its berth, and one of the old forts in the foreground.—N.F.B. photo

Municipals . . .

to Halifax, plans are nearing completion for building the Halifax-Dartmouth Bridge across the harbor. Funds have been provided by the municipalities, the federal and provincial governments, and a bridge commission has been set up. The bridge is expected to be built within the next few years.

Immediate municipal expenditures this year include $220,000 for sewers, $400,000 for sidewalks and $535,000 for street paving. Last year about $1,000,000 was spent on those services. Five new schools have been opened in the last three years, two have had extensions and four are being built. Some $2,000,000 will be spent on new schools in the next few years.

During the last year 28 new firms were established in Halifax, and since 1945 there have been a few British firms established in the city, primarily in aviation and communications. There are drydock and ship repairing plants in the city which can handle every type of ship construction and repair.

The city has modern municipal services, including cheap light and power, and zoned areas with plenty of parks.

Plan 220th slum clean-up

The 220th community received capital grant reservations on May 31, under the Federal Slum Clearance and Urban Redevelopment program authorized by the Housing Act of 1949.

Under the program, HHFA makes loans to local communities for planning slum clearance projects and for acquisition of slum properties for clearance and re-use. Preliminary loans for 100 planning projects have been issued and 11 communities received final loan advances to complete project plans.

The Agency is authorized to issue capital grants to communities equalling two-thirds the difference between cost of acquiring, clearing and preparing slum areas and the sale price of the cleared site.

The first applications for temporary loans and capital grants contracts, which are the final steps prior to actual undertaking of the projects by local public agencies are now being processed by HHFA.

• **Wants traffic expert**—City Manager R. E. McClure of Dayton, Ohio, for several months has been looking for a traffic engineer. He finds that the job is hard to fill satisfactorily, but he has not given up hope of getting a satisfactory engineer soon.

This fellow needs DRIVE-IT!

-and SO DO YOU for fastening steel or wood to concrete or steel . . .

Pity the man who is still using old-fashioned "dig and drill" methods for fastening steel or wood to concrete. He's wasting *his* time and *your* money.

DRIVE-IT powder-powered tools were designed especially to do such fastening jobs in a split-second—and at a great saving in time and money.

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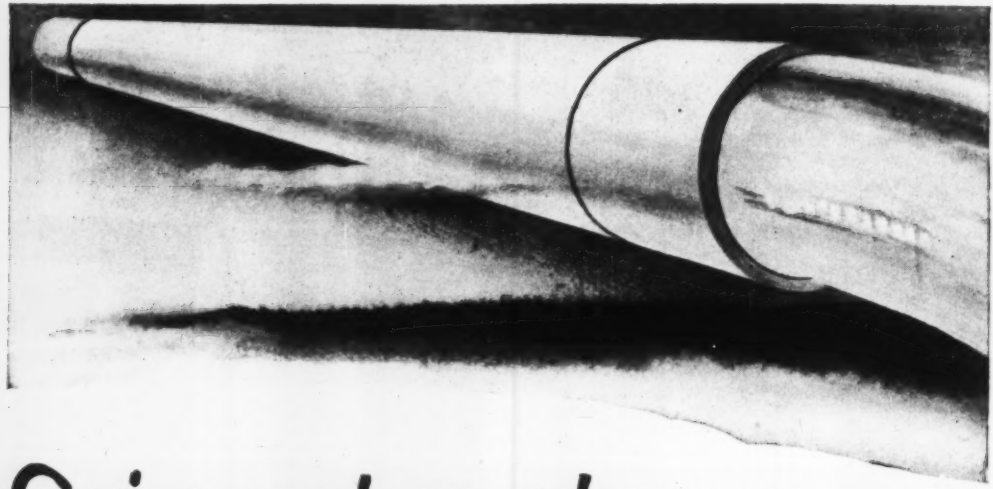

Saving precious water for a thirsty

Municipal consumption of water in the United States has risen from two billion to over twelve billion gallons per day in the last fifty years.

In many areas, this rapid increase is posing a serious problem. It means that water supplies must be conserved to the limit if they are to continue to meet an ever-growing demand.

It is not surprising, therefore, that more and more water-works officials are seeking ways to cut down on water losses as one practical step toward the solution of this problem.

Since recent studies indicate that many localities are losing as much as 10% of water pumped because of underground leakage, an important question to be answered in any water conservation program is this: "How can I plan to reduce this major cause of water loss to a minimum?"

Community after community has found the answer in Transite Pressure Pipe.

The unusual success of Transite Pipe in combatting underground water losses is due to a combination of two factors: (1) the design of the Simplex Coupling used for assembly, and (2) the ability of the pipe to maintain its strength in service.

Because flexibility is engineered into the Simplex Coupling, this factory-made joint is virtually unaffected by pipe line stresses that so often result in the loosening and failure of conventional type joints. No particular skill is required for its proper assembly, which is readily checked in the trench by means of a simple gauge immediately after the pipe ends are joined.

Moreover, Transite's maintained strength provides a further safeguard against costly underground water losses. In thousands of installations representing a wide variety of municipal soils, this asbestos-cement pipe has proved its exceptional ability to resist corrosion . . . to maintain its strength under conditions which have seriously impaired the structural integrity of other pipe materials.

Reducing the amount of "water pumped but not paid for" on your books—a saving in dollars as well as water—is only one of many important economies which Transite Pipe can offer you. Savings on installation, savings on pumping costs, savings on maintenance . . . these are further sound reasons why you will want all the facts about this modern asbestos-cement pipe developed and produced by Johns-Manville to carry water more efficiently.

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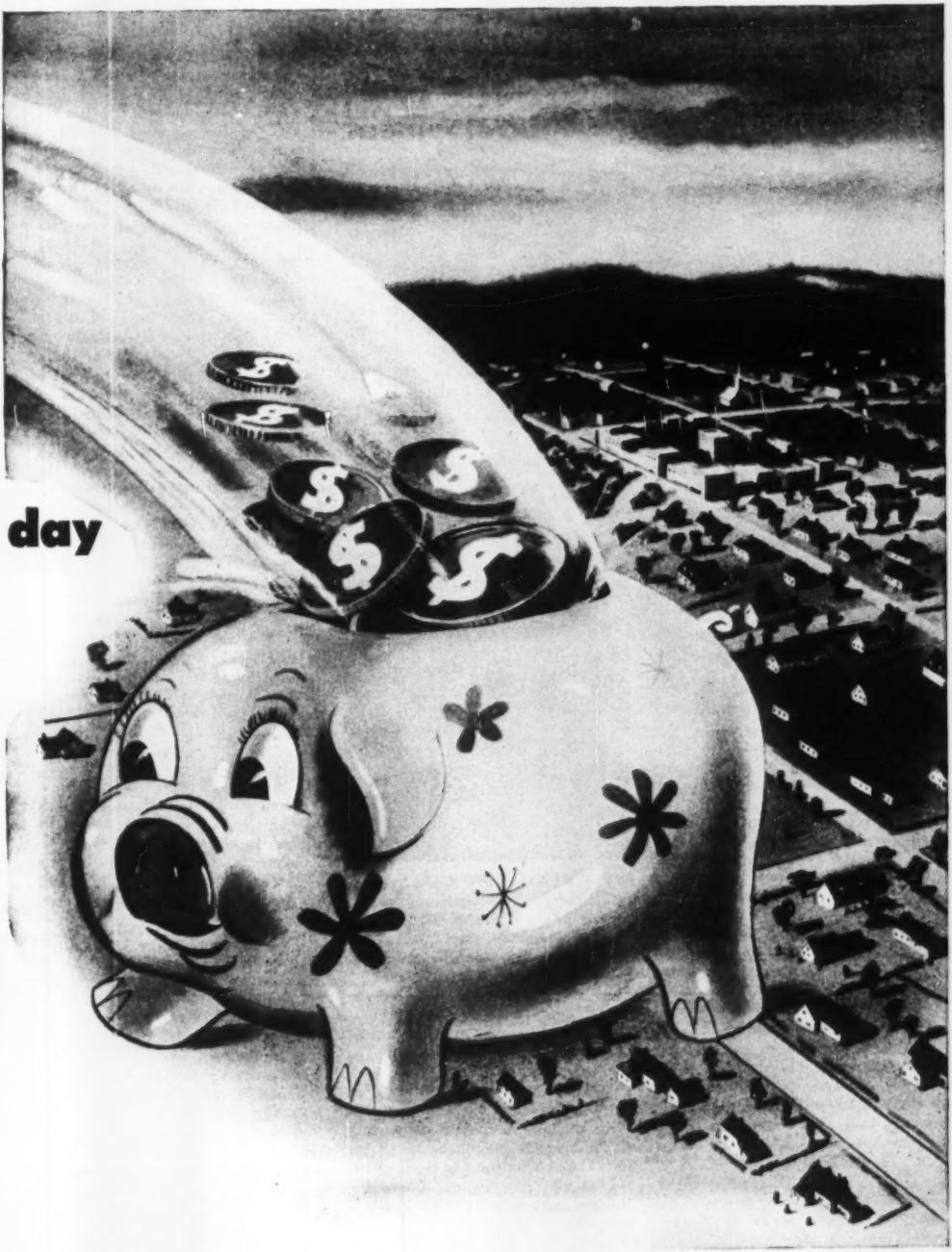

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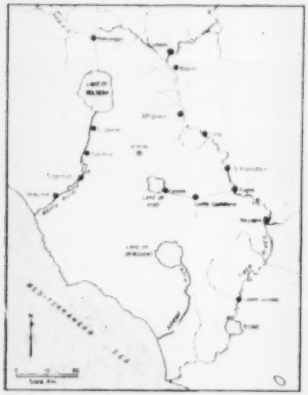
FOREIGN

Italy installs hydro power above Rome as start of $200-million development



The Tiber has a harness on it. A new hydroelectric plant was opened recently at Castel Giubileo, six miles north of Rome.

This was step one in a $200 million plan to develop the Tiber Valley, with other hydro plants to be built at Corbara, Baschi, Attighano, Orte, S. Francesco, Foglia and Nazzano. A dam on the Chiani, Tiber tributary, will store water for the Corbara plant. Further downstream, Lake of Vigo will be dammed to provide head for plants at Civita Castellana and at Casale.

Elsewhere north of Rome, the Lake of Bracciano will be used to store water to feed a power station on the Arrone.

And farther north a dam on the Pagha will store water to be pumped into Lake of Bolsena; downstream from this lake on the River Marta four more hydro plants will be built: at S. Savino, Tuscania, Traponza and Tarquinia.

The Tiber plants and those below Lake of Vigo are planned to be built in the next five years, the remainder of the scheme in the following five years.

The finished plant—Castel Giubileo hydro plant—the first one built by Societa Idroelettrica Tevere—is a low-head station alongside a dam of pier and gate construction.

A 7-meter fall will operate three Kaplan turbines; head will decrease to 3.5 m. at low flow. Total capacity of the plant: 19,200 kva.

Four movable gates form the dam—each one a double-leaf structure 9.4 meters high and 20 meters long.

DOUBLE-LEAF TIFT GATES — This dam at the Castel Giubileo hydro plant is the first project in a $200,000,000 power scheme for the Tiber and other streams north of Rome, as shown in the accompanying map.

How U. S. helps Turkey

"Our Bureau of Public Roads of the Department of Commerce has been working alongside the road officials of the Turkish government. In the first stages of this operation, assigned to each job were three men: one American, one Turk, and an interpreter. When the program started, in December, 1947, Turkey had 525 miles of asphalt roads, mostly in and around the larger cities. There was no real long-distance highway connection between any of the large cities in Turkey. By the end of 1950, more than 6,000 miles of Turkey's 13,600-mile national road system was being modernized and placed under machine maintenance.

"The Bureau of Public Roads introduced to Turkey a new method of bridge construction. The first steel bridge was completed in seven weeks, and this type of bridge has proved its worth and has been accepted by the Turks who had always thought of bridge construction in terms of stone arch or concrete, both of which, of course, take much time and material to build. The cost of transportation and time of travel in Turkey have been greatly reduced. For example, on the Istanbul to Ankara highway, travel by passenger cars has been cut from 16 to 10 hours. Truck rates from Ankara to Konya have been reduced by 75 percent since the road was improved."—Charles Sawyer, Secretary of Commerce.

Foreign briefs

• **Santo Antonio hill delay**—Rio de Janeiro's "off again on again" project for the removal of Santo Antonio hill from the heart of the central business section has been sidetracked once again. Signed contracts for the $27,500,000 job (ENR May 10, page 58) went out the window recently when the city aldermen refused to allocate funds, claiming that they had not been properly consulted at the time the original bids were opened. This caused the resignation of the Federal District's mayor, prime mover of the project, and the presidential appointment of a successor who has set a special commission to re-examining the bids. He has announced that he does not view the idea as urgent.

• **Suez Canal by-pass**—Although its concession expires in less than 20 years, and despite Egyptian demands for immediate nationalization, the Suez Canal Company is pursuing its $14,000,000 improvement program to insure maximum safety and speed to international shipping through the vital waterway. The plan calls for a by-pass seven and one-half miles long to make simultaneous two-way traffic possible, and over-all deepening of the canal to allow the transit of vessels up to 45,000 tons, which would include modern battleships.

• **Foreign highway visitors**—About 50 administrators and engineers from the highway departments of some 23 countries have arrived in Washington to attend the course on highway practice in the United States to be conducted by the Bureau of Public Roads, U. S. Department of Commerce. The course began May 21, and will continue to Sept. 7. After two weeks in Washington attending a series of introductory lectures and demonstrations, there was to be a 3-week bus trip to parts of Pennsylvania, Ohio, Michigan, Wisconsin, Illinois, and Indiana, to study highway construction and maintenance in the field. Following the bus trip, the delegates will spend five weeks in Washington on specialized studies of the phases of highway activity of particular interest to each of them.

• **Engineering exhibition**—The most striking engineering achievements in Belgium will be exhibited in connection with the Sept. 8-13 commemoration of the 75th anniversary of the Association of Engineers from the Engineering School of Ghent.

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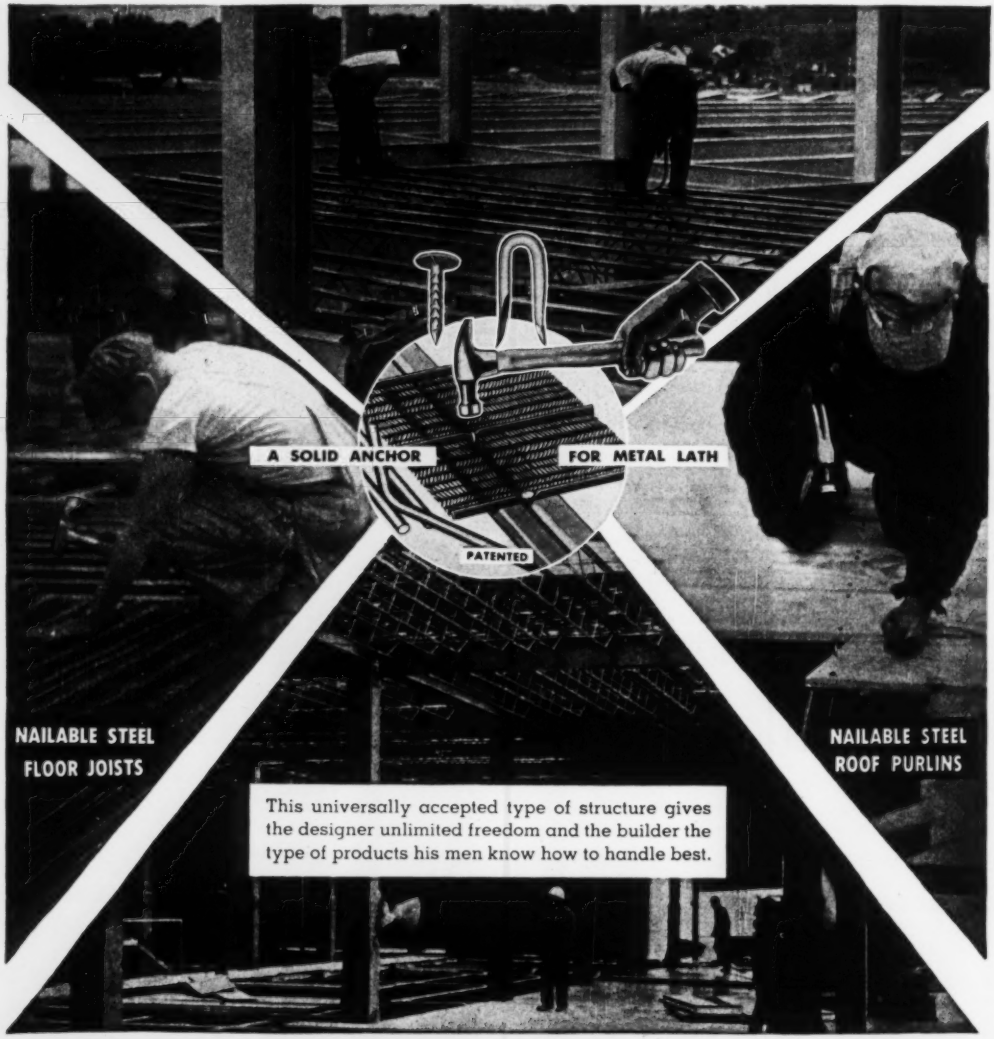

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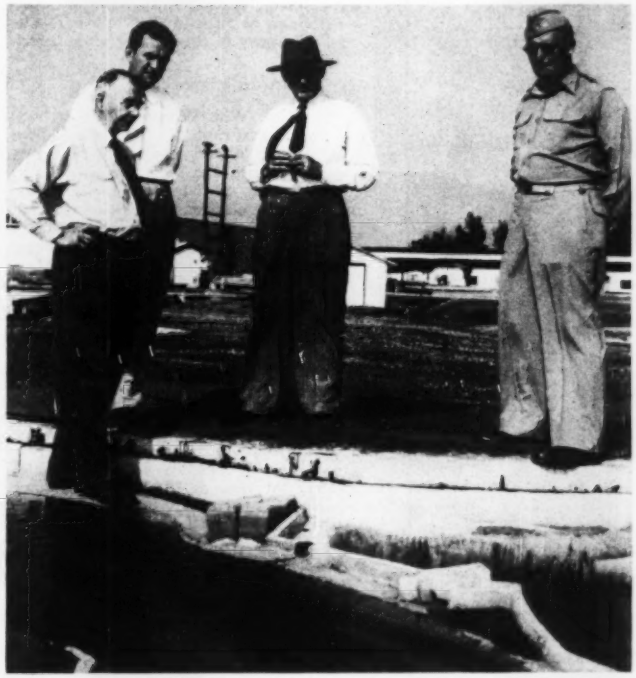

FLOOD CONTROL MODEL—Maj. Gen. H. B. Ferguson, retired, father of Mississippi River cut-offs, visits Waterways Experiment Station, accompanied by Admiral L. O. Colbert, member of the Mississippi River Commission. Left to right: Admiral Colbert; E. B. Lipscomb, engineer, Waterways Experiment Station; General Ferguson; and Col. H. J. Skidmore, director of the Waterways Experiment Station, view a section of the Mississippi River Flood Control model near Greenville, Miss. General Ferguson inaugurated the cut-off program in the Mississippi River when he was president of the Mississippi River Commission in the 1930's.

New appointments

Highway Departments

H. J. Searl appointed office engineer for Div. 4, Tennessee highways.

W. J. Leary now asst. Montana state highway engineer.

Geo. E. Wolf has become asst. supt. of equipment, Missouri highways.

Chas. P. Smith, civil engineer is executive secy. to Ohio Highway Director T. J. Kauer.

Col. John R. Noyes, commissioner of roads for Alaska is leaving for a new Army assignment in the Far East.

State, City and County

Geo. D. Ramsey is the new city engineer of South Pasadena, Calif.

James Andersen has been assigned to the Aberdeen Div. of the S. D. Dept. of Health as sanitary engineer.

Kenneth L. Chrysler is now city engineer of Great Falls, Mont.

Fred H. Klietsch is now director of the Nebraska Bureau of Irrigation.

Edward Scharn is surveyor of Missoula County, Mont.

Chas. Emms has been made engineer for Halifax County, N. S.

Government agencies

Elmer G. Aitken is a civil engineer at the Reactor Testing Station of the U. S. Atomic Energy Commission near Idaho Falls, Idaho.

Benjamin H. Greene, chief of the Chicago office of the Federal Power Commission has been named chairman of the Missouri Basin Inter-Agency Committee.

James F. Smythe, Wigton-Abbott Corp. executive, is on leave to serve with the International Bank of Re-

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construction and Development in Washington, D. C., to assist Lt. Gen. R. A. Wheeler (U.S.A., ret), engineering advisor, in the end-use supervision of loans in the Treasurer's Department at the bank's headquarters.

Corps of Engineers

Col. Wm. Whipple, Jr., has been graduated from the Industrial College of the Armed Forces, Washington, D. C., and has been assigned as army engineer, Ft. McPherson, Ga.

Lt. Col. Henry E. Helmboldt has been assigned to duty in the office of the division engineer, North Pacific Div., at Portland, Ore.

Edwin E. Brabetz has been promoted and transferred from the Kansas City District to the Office of the Chief of Engineers, Washington, D. C.

Consulting engineers

A. St. G. T. Carmichael and **Robt. P. Johnson** have been advanced as principal engineers and as associates in the firm of J. Stephen Watkins, 251 E. High St., Lexington, Ky.

John S. Telfair, Jr., West Point, Alabama Poly. and University of Florida, is joining the municipal consultants firm of Smith and Gillespie, Engineers, Jacksonville, Fla.

Industrial and commercial

Jno. S. McMahon is mgr. of the engineering and construction division General Electric Co. in operation of the Hanford, Wash., AEC works.

Arthur F. Allen is now chief engineer of Safeway Steel Products, Inc. Milwaukee, Wis.

Edwin Wells of S. E. Cooper Co. is supervising a runway extension at Pope Field AFB, Ft. Bragg, N. C.

Alfred E. Ryan is district engineer at Sacramento, Calif. for the Asphalt Institute.

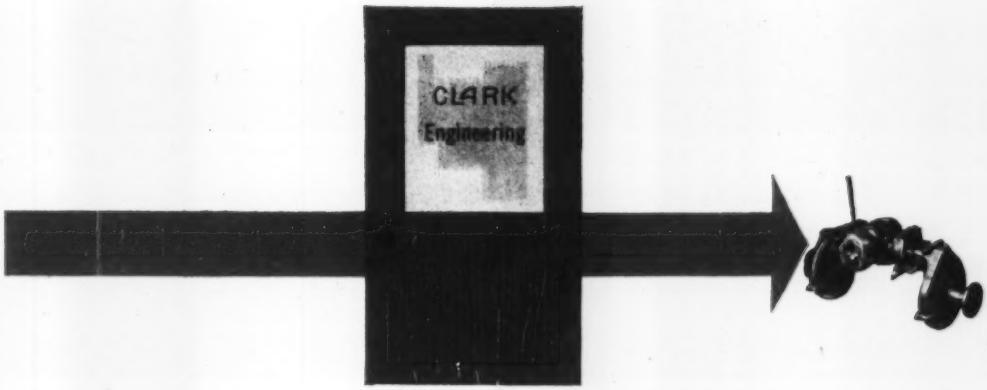
Frederick Davidson, civil engineer, is chief of construction for Eggers & Higgins, 100 E. 42nd St., N. Y. City.

Stephen P. Curtis, chief construction engineer, Construction Engineering Bureau–Manufacturing Division, United States Steel Co., has been assigned as project construction manager in charge of the construction of Fairless Works near Morrisville, Pa.

Robert M. Reindollar, Jr., has been appointed District Engineer of the Philadelphia Office of the Portland Cement Association.

Resignations

Wm. C. Rhodes has resigned as executive secretary to Ohio Highway Director T. J. Kauer.



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...A Tall Order

"Two years ago I was called in by a large company which had purchased 40 acres of farm land as a site for buildings worth $5,000,000," recalls Stanley M. Shartle, Registered Land Surveyor of Danville, Indiana. "Besides a certified land boundary, they required a topographic map showing elevations to the nearest 0.1 ft. at the approximate corners of 50-ft. grid squares covering the entire area.—*And they wanted it done yesterday.*"

"The terrain was flat and timberless. It looked easy. But, at the site, I found corn standing more than 8 ft. tall everywhere and visibility nil. My orders were to 'cut not one stalk'; so I searched for a vantage point. All I found was more corn.

"Surprisingly, the north and south rows of corn proved to be almost in true meridian; and east and west rows were practically perpendicular. This made the location of the grid corners easy to establish without a transit.

"But for leveling I was desperate, 'til an idea hit me: remove the sliding legs from the extension tripod and replace them with 10-ft. lengths of 1-inch thinwall conduit which fit snugly into position. This giant tripod put the level's telescope 12 feet above the ground. On a 12-ft. ladder, I was able to see over the corn easily. It wasn't yesterday when I finished, but pretty darn close."

Corn "high as an elephant's eye" *created leveling problem for Stan Shartle. Solution: extend tripod legs with conduit.*

Remedy for "Frozen" Tripods

Did you ever have an instrument "freeze" to the tripod out in the field? Chances are that nothing you tried would budge it.

The next time it happens, take a tip from a cadastral engineer: spread the tripod legs apart until the instrument is a foot above the ground. The instrument will then come off easily. This engineer first tried the trick 40 years ago; says it's never failed since in any temperature or climate.

Gurley Transit on border survey: *This prominent cadastral engineer—who suggests the above method for "unfreezing" a tripod—used his Gurley Solar Transit in resurveying the Colorado-New Mexico boundary.*

Write for Bulletin 50 giving complete details on Gurley transits, levels and other engineering instruments. And enclose a surveying tip for this page.

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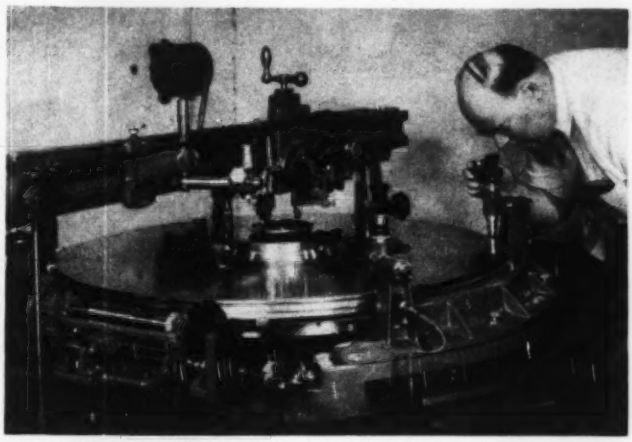

FOR PRECISE ANGLES—Two dividing engines, which can mark divisions of a circle within an accuracy of less than one second, have been installed at the plant of W. & L. E. Gurley, Troy, N. Y., manufacturer of engineering and surveying instruments. Gurley uses the highly precise machines in the manufacture of transits and military equipment. The machines were built by the Societe Genevoise d'Instruments de Physique, (S.I.P.), of Geneva, Switzerland. An unusual feature that insures extra accuracy is the shock-mounting of the machines. They rest on blocks of concrete supported on coil springs, that are placed, in turn, in a concrete foundation. Here, operator observes the reference circle through locating microscope. New horizontal circle for transit is being marked at the center.

New engineering buildings

Following are the latest news items about engineering buildings in different parts of the country;

• **North Carolina**—The $1,000,000 Riddick engineering laboratories building of the North Carolina State College, Raleigh, was dedicated April 27. It is named after Wallace Carl Riddick, the institution's first dean of engineering and fourth president, who served the college for 50 years.

• **Harvard University**—A new horse-shoe-style classroom, designed to give students face-to-face discussion with each other is being tried out at Harvard's Graduate School of Business Administration. Seats that can be turned behind curving desks are arranged in a large U, with the instructor in the middle. A mock-up classroom has been set up in a temporary workshop to work out any flaws in the unique classroom design and to give the faculty experience in using the horse-shoe seating plan. The mockup is the prototype of 20 classrooms planned for Alldrich Hall. The design was developed by the Boston architectural firm of Perry, Shaw and Hepburn, Kehoe and Dean. Associate Prof. John G. McLean headed the business School committee.

• **Wilmington, Del.**—On May 10 E. I. duPont de Nemours and Co., Inc., threw open its $30,000,000 experimental station addition. It took 1000 men two and a half years to construct the new facilities. The total new floor area is about 14¼ acres. The station employs about 800 technically trained research workers, including graduates of more than 200 colleges and universities. Advanced degrees are held by 575 of them.

• **Georgia Tech.**—The Hinman Memorial Building has just been dedicated. Its 22,000 sq ft of floor space provides much needed laboratories and offices. The Engineering Experiment station's research project expenditures currently amount to more than $1,000,000 annually. The new building will permit further expansion. A $1,000,000 building for the School of Architecture is now underway.

• **Cornell University**—The university's new $1,700,000 center for the study of engineering materials will bear the name of two Cornell faculty members who pioneered in engineering education—the late Robert H. Thurston, for 18 years director of Sibley College of Mechanical Engineering, and Dexter S. Kimball, now in retirement at 85, who was the first dean of the college of engineering.

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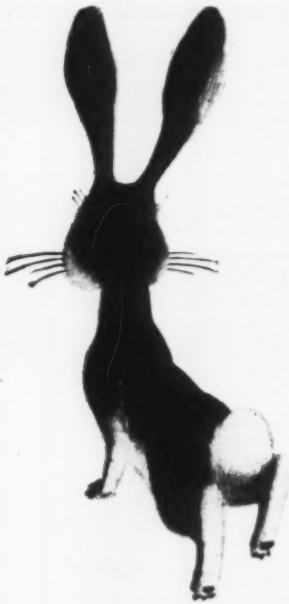
LITTLE THINGS HAVE A WAY OF ADDING UP!



Especially today—there's extra need to guard your expensive equipment against excessive downtime. Sometimes this is caused by seemingly *small* things, but these small things can result in stuck rings, scored cylinders, worn bearings—and really add up to costly trouble! For example...

In an Eastern bus fleet, major overhauls became necessary after 60,000 to 80,000 miles—well below previous mileage. A Socony-Vacuum engineer was called in. He traced the trouble to road dust by-passing the air cleaner and reaching the engine cylinders. His recommendations *doubled* the mileage between overhauls, and saved the cost of an expensive investigation.

In *your* operation, too, there may be conditions which—unknown to you—are affecting the Correct Lubrication of your machines, thus increasing maintenance costs and cutting your profits. *Why not find out?*

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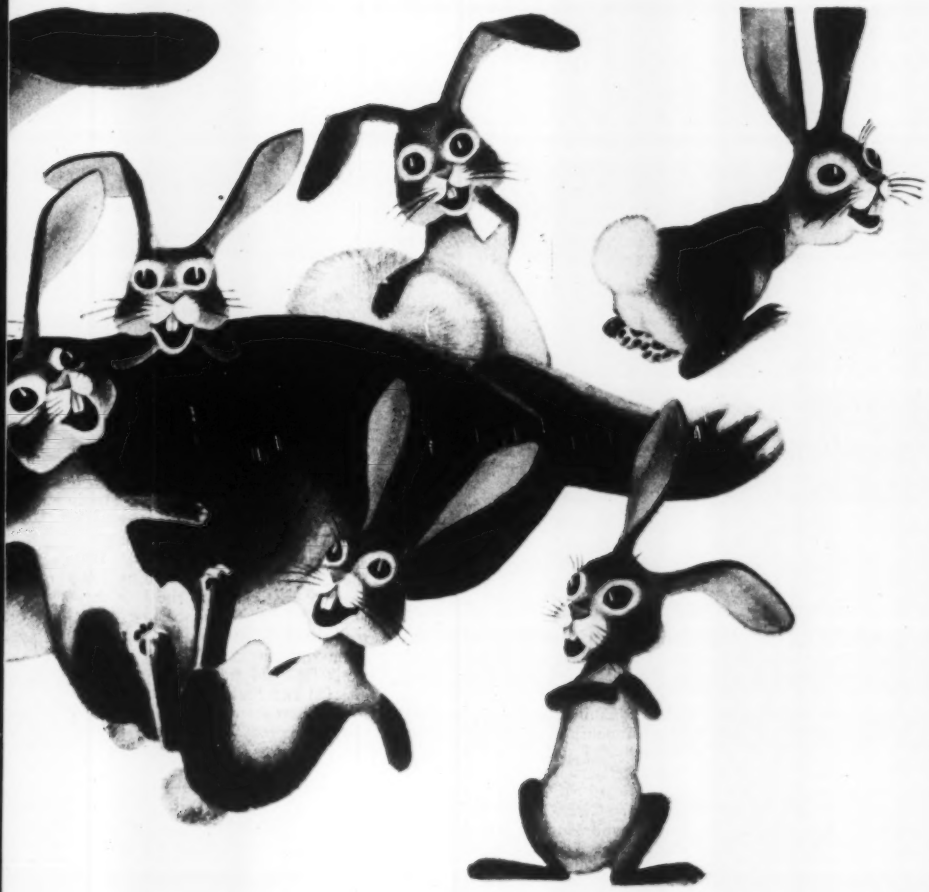

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MEETINGS

Allan H. Candee was elected president of the Rochester Engineering Society at its annual meeting in the Sheraton Hotel, Rochester, N. Y. He succeeds Carey H. Brown who became a director for three years.
Others elected were: Howard A. Brown, first vice president; Oscar S. Field, second vice president; Norman H. Davidson, treasurer; Karl H. Hubbard and Alexander Russell, directors for three years.

The Central New York Chapter, Society of Professional Engineers, installed Victor E. Hall, Syracuse consulting engineer, as president recently. Paul F. O'Neill, an engineer for the Niagara Mohawk Power Corp., was elected vice-president, and Robert E. Hutton of Gleason-Avery Co., Auburn, secretary-treasurer.

Donald West, Chelan County engineer at Wenatchee, Wash., has been elected president of the Washington State Association of County Engineers.

The Joint Committee on Unification of Building Codes reports the election of A. H. Baum, St. Louis, Mo., past-president of the Building Officials Conference of America to the chairmanship of the group, succeeding W. E. Mallilieu recently retired as general manager of the National Board of Fire Underwriters, New York City. Gilbert R. Barnhart, Housing and Home Finance Agency, Washington, D. C., was elected secretary, succeeding the late John B. Courtney of the American Standards Association. The recommendations of the group are being studied by the constituent organizations.

E. P. Murphy has been elected president of the Topeka, Kan., Society of Professional Engineers. Others elected are: Lester W. Servis, vice-president; Signor Fink, secretary; E. E. McCracken, assistant secretary; and Walter L. Thomas, treasurer. H. A. Marshall was elected a director for two years.

Clair E. Gaylord has been elected president of the Technical Societies Council of the Niagara Frontier. The council consists of representatives of 29 engineering and technical societies in that area. Mr. Gaylord succeeded Col. Herbert Ashley of the New York State Highway Department. Other officers are: vice-president, William Mitchell, secretary, George Kappelt, and treasurer, C. Gale Kiplinger.

W. B. Goodwyn of Montgomery, Ala. is president of the Alabama Road Builders' Association. Other officers, T. F. Holbart, Birmingham, vice-president, W. A. McWarters, Montgomery, secretary; W. R. J. Dunn, Birmingham, treasurer.

Bottomless pit bothers Pa. road superintendent

Alfred A. Martin, Lawrence County, Pennsylvania, highway superintendent at New Castle, has found a seemingly bottomless pit on Route 18, six miles south of New Castle. After more than 12,000 tons of filler material and slag was poured into the hole, it was still as deep as it was when the work began a week earlier. The cave in, believed to be caused by shifting clay, first occurred in April when a 450-ft section of the road sank 50 ft. Trees, utility poles, grass and road signs sank with the road. State highway department engineers from Harrisburg examined the road, and decided it could be safely rebuilt. The contract was awarded to the New Castle Duntile Co. The firm was pouring 1,600 cu ft of material into the hole daily, and had almost reached the former road level, when the sinking began again on May 24. Nearby Pennsylvania Railroad tracks have also been affected and traffic has been switched to an alternate trunk line. Future of the sinking road has not been decided, but a by-pass is being considered.

CALENDAR

N. Y. State County Highway Superintendents Association, New Worden Hotel, Saratoga Springs, N. Y., July 18-20.

Bureau of Reclamation, annual programming conference, Wenatchee, Wash., July 23-27.

National Conference on Prestressed Concrete, Massachusetts Institute of Technology, Cambridge, Mass., Aug. 14-16.

Canadian section, American Sewage and Sanitation Equipment Association, Royal York Hotel, Toronto, Ont., Aug. 20-22.

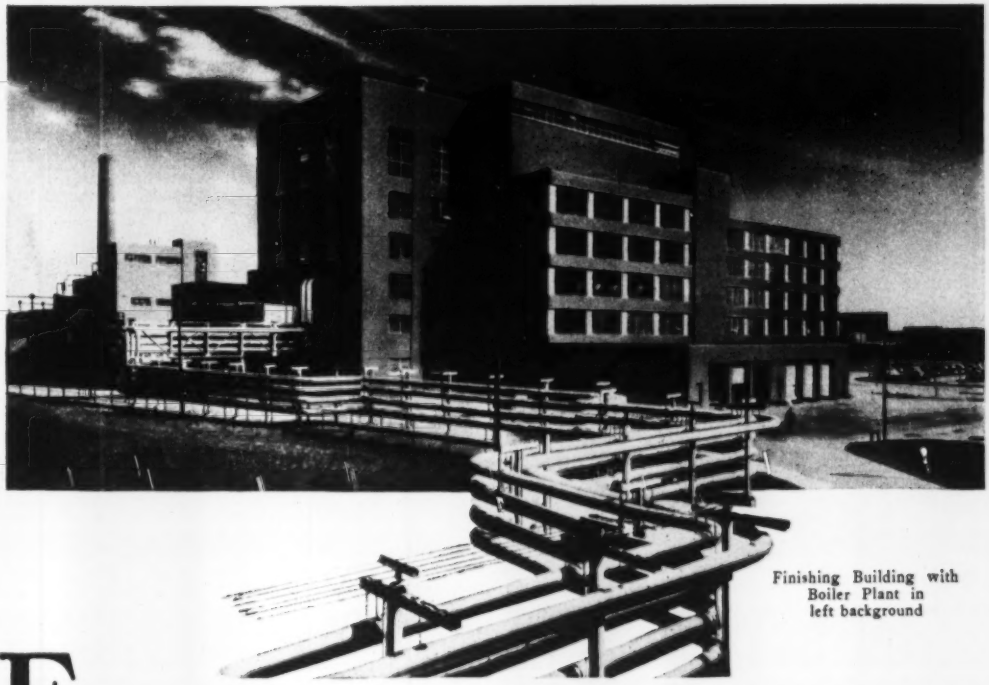
New England Water Works Association, Hotel Statler, Boston, Mass., Sept. 10-12.

N. Y. section American Water Works Association, fall meeting, Whiteface Inn, Lake Placid, N. Y., Sept. 13-14.

Public Works Congress and Equipment Show, Memorial Bldg., Detroit, Mich. Sept. 16-19.

Pennsylvania Section, American Water Works Association, Bellevue-Stratford Hotel, Philadelphia, Pa., Sept. 19-21.

9th International Road Congress, Permanent International Association of Road Congresses, Lisbon, Portugal, Sept. 24-29.



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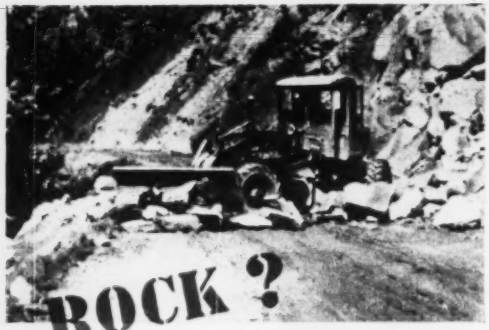

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OBITUARY

George W. Haggard, Deputy Administrator of the Rural Electrification Administration, died June 30 on a mountain slope in the Rocky Mountain National Park sixty miles northwest of Denver, Colorado as a result of an airline crash. Mr. Haggard was formerly general manager of the REA-financed Texas Power Reserve Electric Cooperative, Incorporated, of Austin, and former executive secretary of the Texas Farm Bureau Federation. He joined REA in January, 1948, as assistant administrator.

George T. Oliver, 70, city engineer of Emeryville, Calif., died June 19 in Oakland.

Geo. W. Walker, 66, vice-president and treasurer of Al Johnson Construction Co., Minneapolis, Minn., for 21 years, died in Florida recently.

Melvin Radcliff, 39, Indiana state highway department surveyor was accidentally electrocuted in Indianapolis June 25.

Willard D. Robinson, 60, for 31 years an engineer for the Hennepin County, Minn., highway department, died in Minneapolis recently.

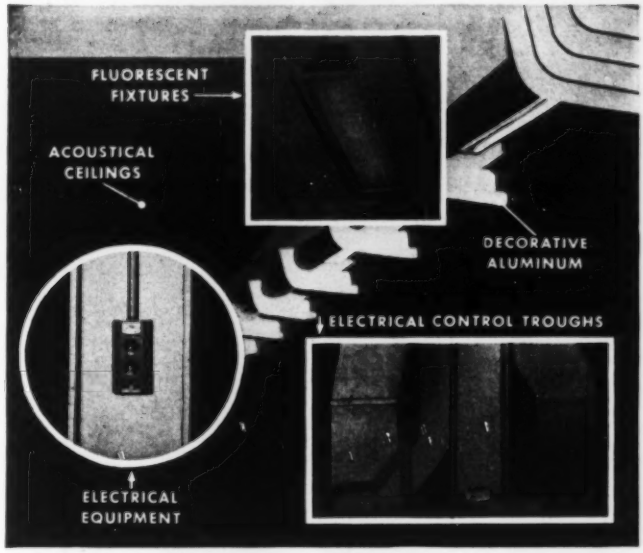
Joseph Leverett Bridges, 67, who retired as district engineer of the Chicago Park District in 1949, died June 13. He was a construction engineer for the Sanitary District on the West Side treatment plant, before joining the Park District.

Charles H. Truby, retired owner of a building and contracting firm in Buffalo, N. Y., died June 23. He went to Buffalo about 30 years ago and did a large volume of construction work in that city. He retired in 1936.

Ellsworth C. Valentine, 68, former Frederick, Md., highway contractor, died there June 6. He supplied bituminous surfacing for highways in Pennsylvania, Maryland and Delaware.

Charles Loring Rodgers, 70, engineer who supervised the construction of the Chicago stockyards, died June 23 in Highland Park, Ill. He was associated with Schmitt, Garden and Erickson, hospital architects, and assisted with the building of hospitals in Chicago and in Pittsburg.

Harry E. Toston, 43, construction engineer, who helped erect two of Washington, D. C.'s major government buildings, died in Washington June 11. He went to Washington



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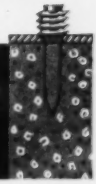

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Obituary . . .

during the 30's and was an engineer in the construction of the Labor Department building. As an assistant superintendent he helped direct erection of the Federal Reserve Building and later was resident engineer during the construction of the new fire alarm buildings. From 1943 to 1945 he served in the 808th Airborne Engineers in the Pacific theater.

Col. Edward T. Lindner, 61, retired Chief of the Army Corps of Engineers Leasing Branch, died June 9 in Washington, D. C. He was commissioned lieutenant colonel in 1942. He went to Washington at the end of World War I and got a degree from George Washington University. He spent five years in Anchorage, Alaska, on assignment with the government railroad building project there. Before retirement in 1935, he pioneered in development of suburban Virginia, building many homes and apartments in Alexandria and in Arlington County as well as in Washington.

John W. Jockel, 69, died June 27 in Cleveland, Ohio. Mr. Jockel was secretary-treasurer of the Ohio State Conference of the A.F.L. Bricklayers Union for 39 years, and a prime mover in organizing the Apprentice Bricklayers Committee in the state of Ohio.

James O'Loughlin, 83, a retired contractor, died June 22 in Hartford, Conn. Mr. O'Loughlin was formerly with the William H. O'Neil Construction Company. During his career he was responsible for the responsible for the remodeling of the Metropolitan Opera House in New York City. Other highmarks of his life work was the construction of St. Joseph's College in Hartford and the Lyceum Theatre.

Alva C. Salles, 68, general superintendent of Indianapolis parks, died June 17. Mr. Salles served in his position during the years 1930 through 1942, and from 1948 until his death. He aided materially in the development of the city's more than 3,000 acres park system.

Arthur C. Schenoff, construction superintendent for Consolidated Constructore of New York City, was honored June 29 with memorial services held at Glen Falls, N. Y. Mr. Schenoff served as superintendent of construction on the Fogg Art Museum at Harvard University, the Harvard Chemical Laboratories and the Massachusetts General Hospital. He made his home in Woburn and West Medford, Mass.

LABOR

Unions to appeal from Virginia damage award

Three Virginia construction labor unions have indicated they will carry on a long court fight, despite a setback recently in which a court awarded a construction contractor damages totaling $275,437.

The unions involved are the United Construction Workers (UMW), United Mine Workers of America, and UMW's District 50.

They were made defendants in a civil suit for damages brought last year by Laburnum Construction Corp., Richmond, in which the construction firm charged that interference by UCW representatives had resulted in a work stoppage, loss of contracts and profits and loss of business reputation on a construction job in Breathitt County, Kentucky.

The unions claimed that they had simply thrown a picket line around the job, after failing to reach agreement in a bona fide labor dispute. Company lawyers retorted that UCW sought to organize non union common laborers on the Laburnum project.

Although the contractor originally asked damages of $500,000, a circuit court jury awarded him the $275,437 in February, 1951. The case was appealed to Virginia Circuit Court, at Richmond.

Union attorneys indicated they would carry the fight to the Virginia Supreme Court.

Seattle building men get escalator raises

In accordance with an escalator clause tied to the cost of living, wages of construction workers represented by the Seattle Building and Construction Trades Council increased 7 cents an hour as of July 1.

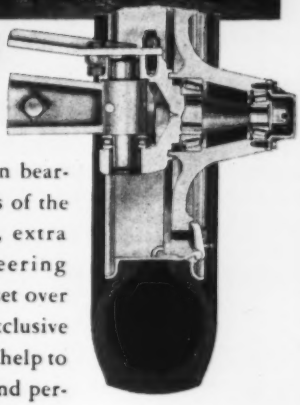
Under the new scale, building laborers, and concrete and carpenters' helpers will get $1.97 an hour; jackhammer laborers, $2.07; plasters hod carriers, bricklayers' mortarmen, and laborers on chimney veneer work, $2.22; side sewermen, $2.32; painters, roofers and reinforcing steel workers, $2.37; sheet metal workers, $2.52; structural iron workers, $2.57; sign painters, $2.67; sandblasters, $2.81¼.

Bricklayers, who made a separate agreement, got $3.30 an hour. Carpenters who stayed outside the council in order to get an increase greater than the cost-of-living boost, got a 12 cent raise, to $2.42.

(Continued on page 68)

18 ROLLER BEARINGS in UTIL STEERING ASSURES EASIER HANDLING!

Here's why MM is easier handling!



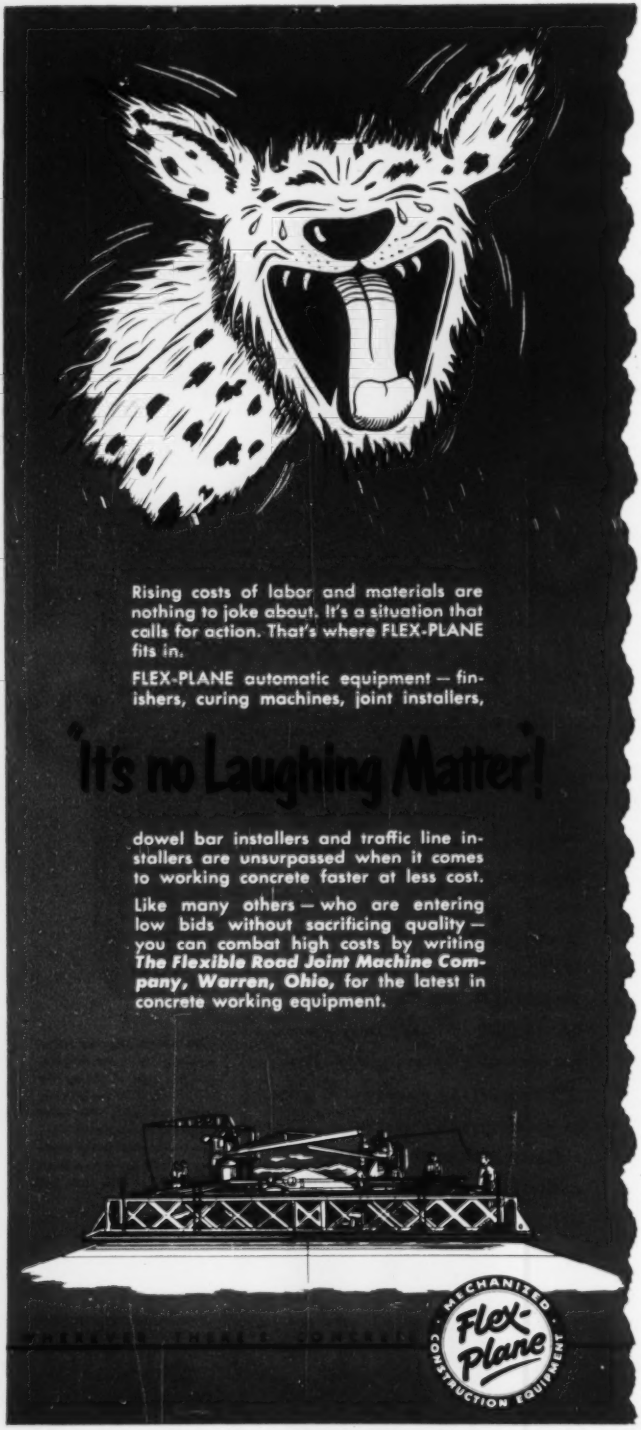
Precision made anti-friction bearings at all important points of the UTIL steering assembly, extra large molded rubber steering wheel, and front wheels inset over steering knuckle pins are exclusive UTIL design features. They help to make UTIL handle easier and permit the use of heavy-duty front-end loaders of maximum capacity.

The steering gear cam is ground to give increased leverage on turns —faster action on straight travel— *easier handling* and *more profitable* operation on all jobs.

Four heavy tapered roller bearings in front wheels, are but part of the quality construction that makes for easier handling. Six roller bearings in the heavy Ross gear, six rollers in the steering knuckles and two large rollers in the tie rods are quality features.

See your MM Dealer-Distributor or Write

MINNEAPOLIS-MOLINE
MINNEAPOLIS 1, MINNESOTA


Rising costs of labor and materials are nothing to joke about. It's a situation that calls for action. That's where FLEX-PLANE fits in.
FLEX-PLANE automatic equipment — finishers, curing machines, joint installers,
"It's no Laughing Matter!"
dowel bar installers and traffic line installers are unsurpassed when it comes to working concrete faster at less cost.
Like many others — who are entering low bids without sacrificing quality — you can combat high costs by writing The Flexible Road Joint Machine Company, Warren, Ohio, for the latest in concrete working equipment.
MECHANIZED
Flex-Plane
CONSTRUCTION EQUIPMENT

Labor . . .

Texas laws strengthen union-control measures

Two more labor regulatory laws—both of which drew hot opposition from organized labor—have been signed by Gov. Allan Shivers of Texas.

One of the measures—intended to strengthen Texas' "right to work" act of 1947—puts Texas labor unions under civil penalty provisions of the state anti-trust laws, making them subject to fines of $50 to $1,500 a day if they "conspire to violate the right to work act" (CD 6/6/51).

A second new law, dubbed an "anti-sabotage act", fixes felony penalties for willful damage of property, if the damage exceeds $50. Labor spokesmen claimed this law would make it possible for a man to be sent to jail if he broke windows in an automobile; sponsors of the measure said it would apply to strike violence, as well as other property measures.

Penna. contractors import Canadian workers

With approval of federal, state and local officials, the Erie Construction Council of Erie, Pa., is now importing bricklayers from Canada.

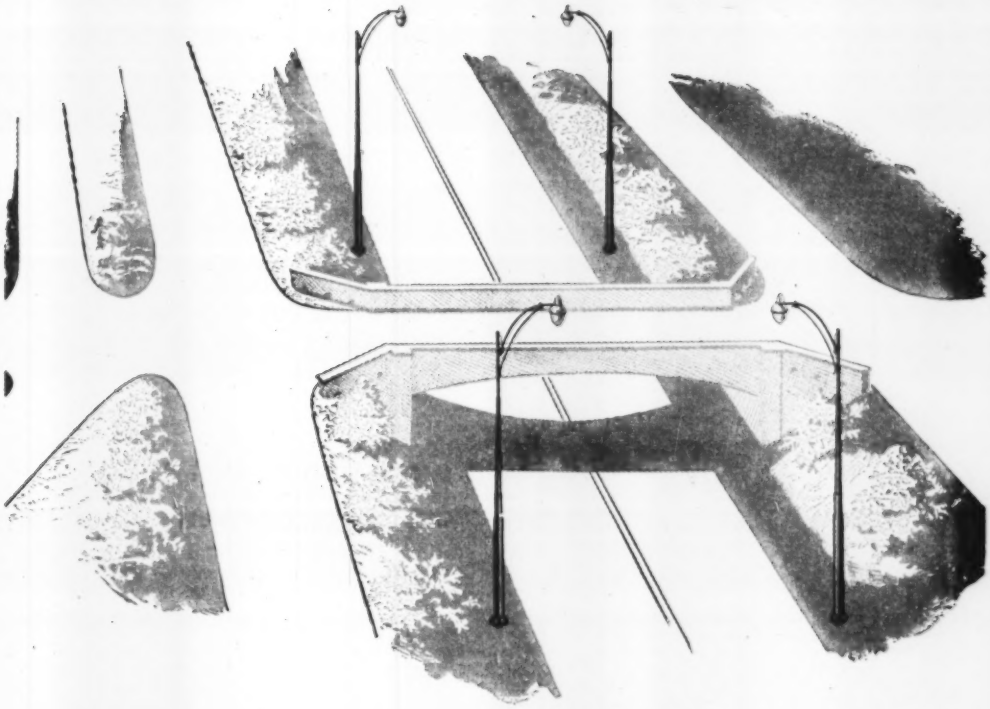
The shortage of these craftsmen was so serious in Erie early this spring that the council asked help from the U. S. Department of Labor, and asked approval from the Department of Justice for importation of Canadians.

So far, 30 to 50 bricklayers have been signed up at Toronto, to enter the U. S. under 6-month permits and to work only for members of the council. The permits may be extended if additional work is available and their work does not interfere with local labor supplies.

Labor briefs . . .

• **OK Nebraska raises**—Employees of Nebraska's state departments have been granted an increase of 10-15 cents per hour (for hourly employees) and $15-$20 monthly (for those on monthly payrolls). The increase came after attorneys for the State, County and Municipal Warehousemen, Motor Equipment Operators, Garage, Maintenance and Utility Employees, presented the need for more money to Gov. Val Peterson.

• **Kansas City wages**—An increase of 18½ cents an hour was given bricklayers at Kansas City, Mo., raising their wages to $2.86 an hour. Carpenters were raised by 14 cents an hour at the same time, to $2.36½.



EXTERIOR DECORATORS:

dress up your streets with these slim steel poles

Any city perks up when unsightly poles are replaced with slim tubular steel standards.

Steel poles are smartly unobtrusive—in parks, on boulevards . . . on main streets, too. But just as important as good looks is the fact that steel poles, properly used, can save plenty of money.

National Tubular Steel Poles can be spaced at wide intervals – you don't have to use so many poles. Steel poles are easy to erect. Except for an occasional paint job, they require no maintenance.

Steel poles have very high strength, so they can take a lot of punishment. Their small diameter results in good traffic visibility and better all round safety.

National Seamless Tubular Steel Poles have absolute uniform wall strength *without* longitudinal welds. To produce them this way we actually pierce a solid billet of fine steel to form the basic shape. This forging operation, one of the most difficult in steel forming, gives you the famous "Walls Without Welds,"—the strongest, most durable steel standard you can buy.

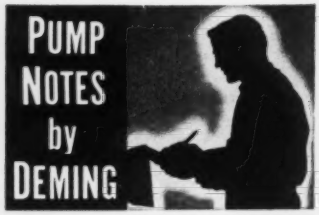
Bulletin No. 14 describes these poles completely. For a copy write to National Tube Company, Frick Building, Pittsburgh 19, Pa.

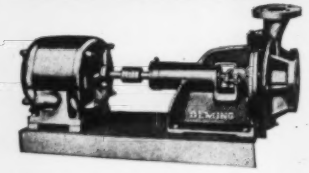
NATIONAL TUBE COMPANY, PITTSBURGH, PA.

COLUMBIA STEEL COMPANY, SAN FRANCISCO, PACIFIC COAST DISTRIBUTORS · UNITED STATES STEEL EXPORT COMPANY, NEW YORK

NATIONAL *Tubular* STEEL POLES

UNITED STATES STEEL





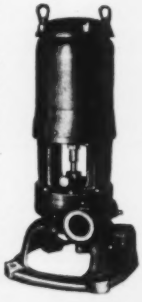
Two ball bearing design and heavy-duty construction contribute to the reliable performance and long life of the Deming single stage, side suction centrifugal pump illustrated.

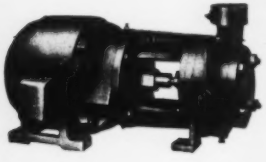
Bearings are not affected by the liquid being pumped due to their location in the support head.

Pumps range in size from 1 to 6 inch discharge with capacities from 10 tc 1200 G.P.M. These units can be furnished for belt, electric motor or gasoline engine drive.

Write for 16-page, illustrated BULLETIN No. 4013-A which contains complete information including performance tables.

Deming "MOTOR-MOUNT" centrifugal pumps include Type "V" (vertical) and Type "H" (horizontal) as illustrated. Design of both types permits mounting these pumps on any motor having NEMA type "C" mounting flange. Capacities range up to 200 G.P.M. Heads up to 165 feet. Write for 3-color illustrated BULLETIN No. 4350.





THE DEMING COMPANY
536 Broadway • Salem, Ohio

SPECIFY DEMING PUMPS

CONSTRUCTION BUSINESS

CONTRACTORS LISTED BY SIZE, LOCATION, TYPE OF WORK

	By Size Group*			
	1	2	3	Total
A—All Construction Other Than Buildings	716	629	2,313	3,658
B—Building Construction Only—Industrial, Commercial, Public and Residential	1,061	684	1,483	3,228
Total				6,886

SPECIFIC TYPES OF WORK

	By Size Group			
Type of Work	1	2	3	Total
Waterworks	116	88	331	535
Sewerage	157	111	417	685
Bridges	209	112	274	595
Streets and Roads	392	357	978	1,727
Excavation and Drainage	154	67	227	448
Airports and Airbases	91	44	100	235
Unclassified	190	108	414	712
Federal (Included in above)	220	104	316	640
Industrial Buildings	468	183	509	1,160
Commercial and Public Buildings	964	614	1,035	2,613
Federal (Included in above)	113	24	48	185

* Size Group:
1—$1,000,000 and Over

Contractors are bigger in 1950 and there are more of them

In the biggest year on record for engineering construction contractors to date, 6,886 companies topped the $100,000 mark for new contracts awarded them in 1950 as reported in ENGINEERING NEWS-RECORD.

The million dollar and over blue-bloods number 1,777. Another 1,313 topped half a million but didn't push over the million mark and 3,796 were on the way up, their new contracts added up to $100,000 or more but not over $500,000.

Building construction produced 3,228 of these contractors while all other types of heavy construction provided jobs for the other 3,658. The million-dollar-and over contractors make up 33% of the building contractors and 19.6% of those on all other classes of construction.

Buildings account for 46% of the contractors in the $100,000 to $500,000 size group. Among the waterworks, sewerage, highways, bridges, earthwork, waterways and other types of construction contractors, 63% are in $100,000 to $500,000 size group.

Screened out of the work reported for these and other contractors are construction projects below these minimum sizes: $34,000 and under for waterworks and waterways, $60,000 for other public works, $82,000 for industrial buildings, $300,000 and under for other buildings.

For the first time, the number of contractors is now known as to the types of work they handled: 535, for example took waterworks jobs, 1,727 had streets or roads contracts, 1,160 built industrial buildings, 2,613 built commercial or public buildings including mass housing. By overall size of each company these are shown in the accompanying table according to the class of work they did in 1950.

Also for the first time the distribution of these big contractors by states is known.

Texas tops the list with 247 of the million-dollar contractors. California is a close second with 221. For third place Pennsylvania with 178, noses out New York's 176 and Illinois places fifth with 172.

Texas tops out with the totals too, 795 or 11.5% of the U. S. total California is second here too, with 707 or 10.3%. Pennsylvania is third with 514 or 7.4%, Illinois is fourth with 469 or 6.8%, New York is fifth with 348 or 5.1% and Ohio is sixth with 4.5%.

Building material output continues upward trend

Continuing an upward trend for the second month, U. S. production of building materials showed a 1.6 point general rise for April.

The April index figure (unadjusted, 1913=100) was 168.8, compared to 167.2 for April. After a long period of decline—from a high of 192.2 in August, 1950—the index started to move upward again in March.

However, there were a number of significant production declines in the components of the index. These included:

Hardwood flooring, at 179.8 for April, was down from 192.8 for March; Wire nails, at 132.1 for April, down from 139.4 for March; fabricated structural steel, at 160.5 for April, down from 162.3 in March; concrete reinforcing bars, set at 133.2 for April, dropped below the 152.4

figure for March; softwood plywood was at 252.6 for April, compared to 277.7 for March; asphalt roofing and siding, at 168.5 and 196.2 respectively, both were down from March; structural clay tile was at 118.3 for April, down from 123.8 in March; gypsum lath was 258.6, down from 274.4.

Up side–On the gains side, these production figures were significant:

Lumber was figured at 144.8 for April, compared to 137.2 in March; brick production was 140.5 for April, compared to 135.6; cement was 198.1, compared to 183.6; gypsum board was estimated at 861.3, compared to 817.5; clay sewer pipe was at 158.8 for April, compared to 155.7 for March.

Business briefs . . .

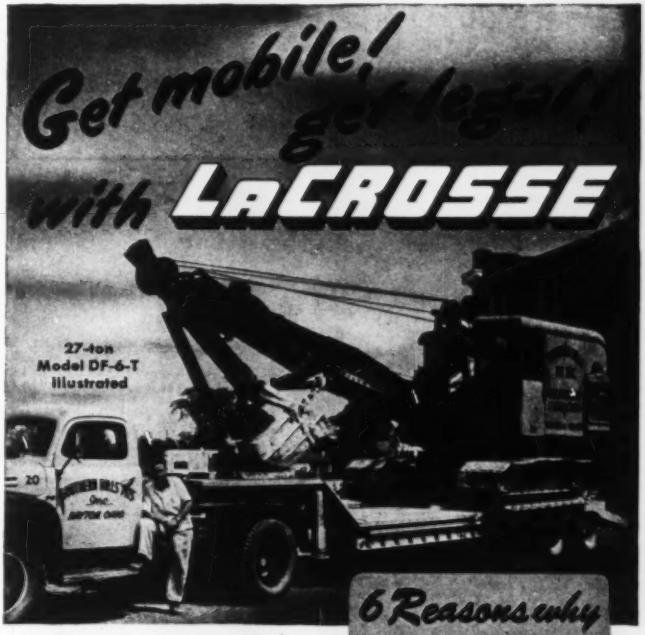
• **Tractor order**–The Caterpillar Tractor Co. announced receipt of a $22 million order for track-type tractors, from the Corps of Engineers. Machines will go to all three armed services.

• **High bids**–Future of the Bureau of Reclamation's Eklutna project in Alaska (ENR Oct. 26, 1950, p. 31) is in doubt as result of bids on a 4.4 mi tunnel and surge tank that nearly doubled estimates. Morrison-Knudsen of Boise, and Peter Kiewit Sons Co., Seattle, combined on a low bid of $21,321,695–almost double the estimate of $11,205,105.

• **Clay products up**–Production of unglazed brick in April rose to 553 million units, the Bureau of Census reports–the total being 4% above production in March (534 million units) and 22% higher than April, 1950. Production of clay sewer pipe also mounted slightly–up 8% to 142,000 tons.

• **Steel production holds**–For the 18th straight week, production of steel ingots and castings was over 2,000,000 tons this week, the American Iron and Steel Institute said. The record holds despite the interruption of the Fourth of July holiday at mid-week.

• **Phila. gets grant**–Philadelphia, Pa., is the first of 123 U. S. cities to receive a federal loan and grant to aid in a slum clearance project. HHFA allotted a temporary loan of $368,271 and a grant of $274,697 to the city, to finance a slum clearance project in the East Poplar area, where old buildings will be torn down and the land redeveloped as a middle-income housing area.



6 Reasons why

1. Up to 2000 lbs. less dead-weight per trailer!
2. Stronger, full-length welded frame!
3. Bigger, more powerful S-cam brakes!
4. Tougher, longer-lasting brake linings!
5. Extra wide base rims for longer tire life!
6. Stronger axles . . . smoother decks!

Impending *shortages* of new equipment—plus strict *enforcement* of laws regulating hauling on public roads—make it highly desirable for you to check your 1951 trailer requirements IMMEDIATELY. Keep *present* equipment rolling, eliminate costly delays, with *job-proved* La CROSSE low beds . . . 8 to 67-ton capacity . . . single, dual or tandem axles . . . flat, drop or tilting platforms. Also custom-built trailers for special hauling problems.

LC-16

Check Today!

LA CROSSE TRAILER CORPORATION, La Crosse, Wis.

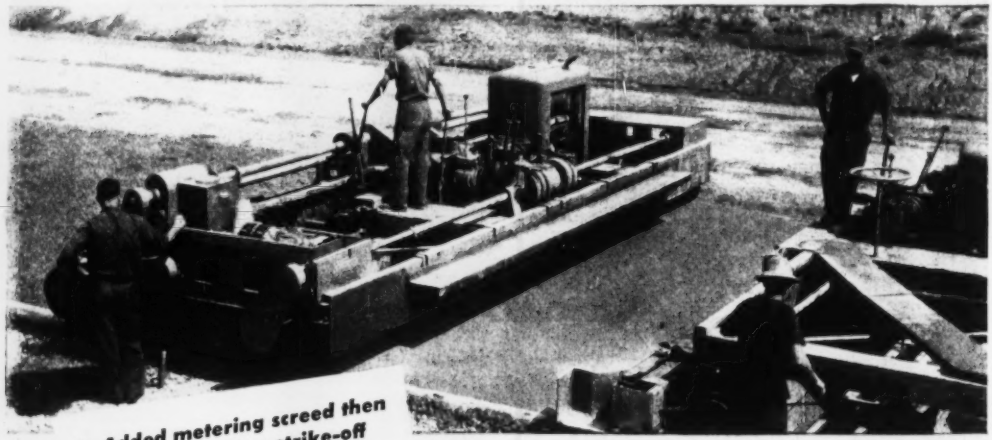
☐ Rush complete information on La Crosse trailers:
☐ Specifications ☐ Prices ☐ Delivery
☐ Send name of nearest La Crosse Distributor.
☐ We may buy a ..... ton trailer about ..... (date)

Name.....Title.....
Employed by.....
Address.....
City.....State.....

LaCROSSE
America's Favorite LOW BED TRAILER

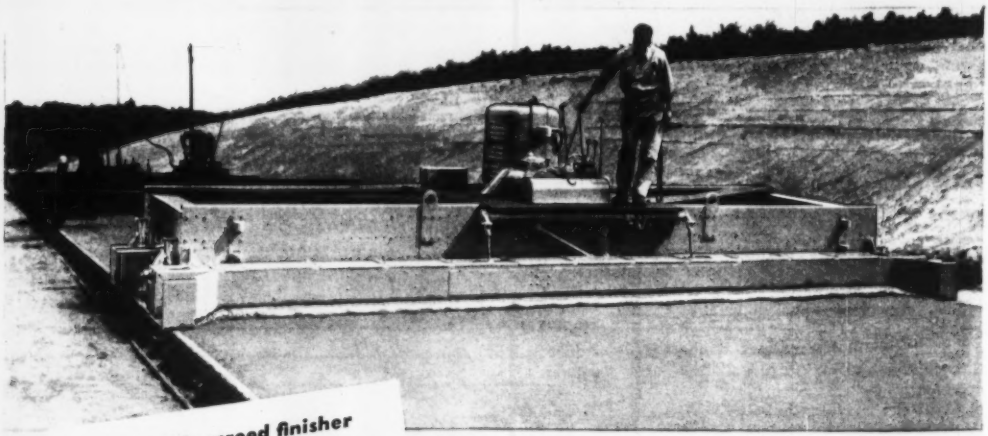
1: Spreader screw and strike-off do all heavy work

Screw easily knocks down biggest piles, thoroly remixes the material as it spreads it form-to-form. Adjustable plate then makes initial strike-off.



2: Added metering screed then makes precision strike-off

Note accurately metered surface left by oscillating 12" screed (missing from all other spreaders). No costly carry-back, no high spots. Ideal for finishing.

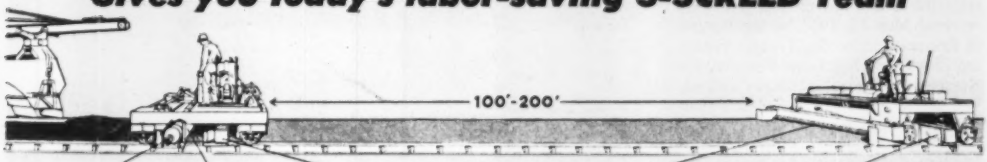


3: Double screed finisher completes the finish

Note small, accurately metered roll of material the finisher works with. Always uniform compaction under the screeds, easier, better finishing. Has eliminated second finisher where required on high production work in several States.

Jaeger locates the missing screed immediately behind your paver

Gives you today's labor-saving 3-SCREED Team



Re-mixing spreader screw: Reworks, compacts and spreads material evenly from form to form.

Initial strike-off to approximate grade (all that any other spreader can accomplish.)

No. 1 — Metering screed Makes precision strike-off with 12" oscillating shoe. Corrects any excess or deficiency left by initial strike-off. Saves cost of shovelers for carry-back and far costlier back-tracking with the paver.

No. 2 — Transverse Screed: Works with just the right roll of material as "metered" by the Spreader. No piles to buck. Uniform compaction at all times.

No. 3 — Diagonal Screed: Pivots to any angle needed to carry material up-hill on pitched slab or super-elevated curves, compacts it solidly against higher form. Corrects any irregularities left by transverse screed because it meets material at different point. Also finishes stiff mixes without tearing.

Note how this 2-machine "team," *with its 3 screeds*, directly saves labor in front and back of the finisher, maintains steady progress with dual-drum pavers working at capacity and produces uniformly denser, smoother finished, longer wearing slab. Spreaders and Finishers both built in 10-15, 20-25 ft. widths. Screw-and-Screed Spreader also adaptable for bituminous pavements, including concrete base.

Jaeger aggregate spreader lays big, low cost tonnage

Costs ½ the price of bituminous pavers and is better adapted to lay highway and airport base, pave parking lots and many secondary roads. Spreads up to 12" thickness in 10'-11' widths, lesser thicknesses to 12½'—base and surface aggregates, free-flowing hot or cold bituminous mixes or plant-mixed stabilized soil.

Crawler or 4-wheel traction, always on subgrade—no displacing of loose material. Two models to work with any trucks up to 24-ton semi-trailers.

Jaeger compressors do up to 4 days' work in 3

With Jaeger's 15% to 25% more air you can get 30% to 40% more production with the same men and tools. Model 125, for example, runs 2 heavy breakers at full pressure, breaking up to 40% more yardage than with 105 ft. compressors.

Other "new standard" AIR-PLUS models, delivering 75 to 600 cfm @ 100 lbs. pressure, offer comparable advantages, increase your production by increasing air-power at lowest cost per cu. ft. of air of any compressors on the market.

Jaeger "Sure Prime" pumps pull stronger, pump longer

Built oversize to produce full rated volume at easy, long-life speeds. Hold more priming water; are less subject to abrasive wear. That's why Jaeger pumps prime without vapor-lock on the toughest pulls, prime fast and sure with two simultaneous priming actions and maintain high efficiency during thousands of hours of added service from both pumps and engines.

Dewatering pumps up to 240,000 gph. Pressure pumps up to 275 psi.

Now is the time to make good use of your Jaeger distributor's service.

THE JAEGER MACHINE COMPANY

200 Dublin Avenue, Columbus 16, Ohio • Distributors in 130 Cities • Cable BIGANLITLE

UNIT PRICES BID BY CONTRACTORS

Pumping plant, Central Valley Project, Calif.

Bidding 36% above the engineer's estimate, a low bid of $709,603 was received May 22, 1951 by the Bureau of Reclamation on the Trauger Pumping Plant and High Level Distribution Reservoir, Central Valley Project, Calif. The low bid was 7% less than the only other bid presented.

Situated about 1¼ miles east of Lindsay, Calif., in the Lindsay-Strathmore Irrigation District, the project consists of the construction of a pumping plant and access roads, reservoir inlet and outlet structures and drain and overflow structures, plus a 72 inch concrete pipe feeder main.

Material will be furnished by the government except where noted otherwise in the unit price schedule. All work required for (a) the installation of West Low, East Low and High Level Distribution Mains must be completed within 330 days and (b) the remainder of the work within 360 days. Penalty for each day's delay on either section is $75.

Minimum wage rates are: common labor, $1.55; pipelayers, $1.80; plasterers, $2.50; plumbers, $2.65; power equipment operators, $1.84 to $2.59; and truck drivers, $1.58 to $2.04.

Bidders were:

1 Stolte, Inc. & Fred J. Early, Jr., Co. Inc., joint venture, San Francisco, Calif	$709,603.00
2 United Concrete Pipe Corp., Baldwin Park, Calif	760,903.90
Engineer's estimate	521,061.00

Items	Quantity	Unit prices 1	2
Clearing & grubbing	ls	$1,060	$2,000
Removing existing structure	ls	2,210	1,500
Excavation			
For reservoir- common	cy 9,600	3.00	2.00
Rock	cy 10,140	3.00	2.00
For pumping plant, common	cy 4,000	1.45	4.00
Rock	cy 3,600	4.60	4.00
For 72" concrete pipe trench, common	cy 5,650	1.50	2.00
Rock	cy 50	5.60	6.00
From borrow, common	cy 3,000	2.40	2.00
Compacting embankments	cy 9,400	1.40	0.40
Backfill	cy 8,800	1.33	0.35
Compacting backfill	cy 3,800	0.54	3.00
Comp gravel backfill	cy 470	6.70	6.00
Placing gravel base for surface	cy 525	9.40	5.00
Riprap	cy 12	13.00	10.00
Furnish & erect beam-type guardrail	lf 1,200	3.00	4.00
Furnish & lay:			
Standard strength conc-culvert pipe, 12"	lf 80	5.70	5.00
24"	lf 68	10.00	7.00
30"	lf 9	21.00	9.00
Rein-conc pipe, 24" H25P	lf 190	14.40	8.00
24" H25CP	lf 70	13.00	9.00
72" H25P	lf 570	47.60	37.00
72" H25CP	lf 280	49.40	40.00
Fabricating bends in 24" H25P RCP	ea 2	55.00	30.00
Fabricat 12" x 12" x 12" type B tees in RCP	ea 2	40.00	20.00
Furn & install valve box & cover	ls	140.00	50.00
Furn & construct type B pipe vent	ls	150.00	30.00
Furn &handle cement	bbl 3,120	6.10	5.00
Furn & place reinf bars, 1¼" & less	lb 48,800	0.16	0.15
⅜" to 1"	lb 93,200	0.16	0.15
1" & larger	lb 118,000	0.158	0.12
Conc in pump-pl structure, 1st stage	cy 1,260	77.00	70.00
2nd stage	cy 110	32.20	100.00
Concrete, fill	cy 170	17.00	25.00
In reservoir lining	cy 475	32.40	50.00
In misc structure	cy 70	97.00	100.00
In beddings & casements	cy 135	20.00	30.00
Furn & place:			
Preformed bitum joint filler, ½"	sf 35	1.00	2.00
1"	sf 175	1.20	3.00
Corkboard joint filler, ½"	sf 765	0.60	2.00
1"	sf 20	1.20	3.00
Elastic filler mat'l in joint, ½"	sf 60	1.15	2.00
Metal seal, typ N	lf 470	2.00	3.00
Rubber waterstop, 4½"	lf 25	2.40	2.00
6"	lf 35	3.00	3.00
Install rubberjoint strips	lf 380	0.15	1.00
Paper & earth protective covering, furn & apply	sf 3,700	0.07	0.20
Asphalt-emulsion dampproofing, 2-coat, f & a	sy 39	2.00	2.00
Membrane waterproofing, f & place	sf 1,437	1.00	0.20
Wood decks, f & construct	Mbm 19	380.00	400.00
Roof insulation, f & place	sf 6,000	0.50	0.50
Coal-tar-saturated-felt roofing, f & p	sf 6,000	0.48	0.40
Asphalt tile, f & i	sf 2,280	0.30	0.50
Asphalt cove bases, f & install	lf 380	0.45	2.00
Conc wall bases	lf 75	0.80	3.00
Wood siding, 1", f & i	Mbm 0.4	625.00	500.00
Wainscot siding, 2", f & i	Mbm 2.5	400.00	600.00
Insulation for soundproof partition, f & i	sf 570	1.10	1.00
Structural insul for exterior walt of pump-pl superstructure	sf 5,200	0.68	0.50
Brick planting box & brick wall, construct	ls	1,050	600.00
Portland cement stucco	sy 625	7.20	3.00
Suspended metal lath, plaster ceiling	sy 16	5.00	6.00
Metal lath & plaster on walls	sy 780	8.50	4.00
Attached metal lath & plaster ceiling	sy 35	4.40	6.00
Plaster on concrete base	sy 60	3.60	4.00
Suspended acoustical unit ceiling, f & install	sf 2,250	1.86	1.50
Steel framing for pump-pl superstructure & crane runway, f & erect	ls	44,260	40,000
Industrial-type steel swinging door, f & install, in concrete walls	sf 50	8.00	5.00
In plastered wall, plastered partition	sf 200	10.00	5.00
Flush-type steel swing door, f & i	sf 255	7.00	5.00
Vault door, f & i	sf 25	46.40	10.00
Steel rolling door, f & i	sf 500	4.50	4.00
Steel windows, f & i	sf 575	3.40	3.00
Front entrance, f & i	ls	4,060	5,000
Installing cranes	lb 10,000	0.075	0.10
Distribution piping, i	lb 175,000	0.082	0.50
Anchor bolts, f & i	lb 3,100	0.26	0.70
Misc metalwk, f & i	lb 5,400	0.53	0.70
Metal toilet-stall partition, urinal part, locker-room screen part, f & i	lf 25	25.00	10.00
Metal flashing, f & i	ls	1,210	1,000
Steel handrail except handrl for ship ladder, f & i	lb 700	0.68	1.00
Metal stair tread, f & i	lf 80	3.00	2.00
Hatch covers, floor plates, base plates, & gratings, f & i	lb 16,000	0.354	0.50
Embedded steel frame & angles, f & i	lb 2,000	0.46	0.50
Chain-link fence, f & erect	lf 200	3.80	3.00
Woven-wire protective enclosure, f & i	sf 140	2.35	2.00
Motor-driven pumping units, install	lb 140,000	0.067	0.30
Water screens, i	lb 70,000	0.061	0.12
Motor-operated gate valves, i	lb 16,000	0.05	0.12
Check valves, i	lb 13,000	0.04	0.12
Slide gates, gate hoists, f & i	lb 2,600	0.85	0.80
Surge suppressors, i	lb 6,000	0.045	0.15
Float switches, f & i	ls	812.00	2,000
Chlorination equipment, f & i	ls	27,600	26,000
Pressure filters & coagulant feeder, f & i	ls	3,600	15,000
Venturi tubes, f & i	ls	37,900	15,000
Flow-meter units, f & i	ls	6,752	12,000
Hose rack unit, f & i	ls	160.00	500.00
Portable fire extinguisher, i	ls	65.00	200.00
Brass & copper pipe, tubing, valve, fittings, f & i	lb 1,400	2.50	2.00
Steel & wrought iron pipe valves, & fittings 2" & lessin nominal dia, f & i	lb 1,300	0.80	2.00
2½" & larger	lb 9,700	0.55	1.00
Cast-iron soil pipe, fittings, floor drain, roof drain, f & i	lb 12,000	0.80	0.50
Pipe hangers & supports, f & i	lb 800	0.56	1.00
Lavatories, f & i	ea 4	85.00	100.00
Water closets, f & i	ea 3	95.00	150.00
Urinals, f & i	ea 2	225.00	150.00
Service sinks, f & i	ea 2	160.00	100.00
Toilet-paper holders, f & i	ea 3	7.00	10.00
Cabinets for folded-paper towels, f & i	ea 3	10.00	20.00
Gas-fired storage water heaters, f & i	ea 2	175.00	200.00
Drinking water coolers, electric, i	ea 2	20.00	150.00
Chromium-plated pipe & accessories, f & i	lb 250	6.50	5.00
Vit-clay sewer pipe with closed joints, 4", f & lay	lf 25	2.24	5.00
Field drain tile, 4", f & l	lf 350	2.60	4.00
Heating & ventilating system in pump-pl, f & i	ls	23,300	16,000
Ground conductors, f & i	lb 1,410	2.30	3.50
Furn & install electrical rigid metal conduit			
Embedded, ¾" dia	lf 1,500	0.92	0.80
1"	lf 80	1.95	1.00
Buried, ½"	lf 70	1.90	1.00
2"	lf 325	3.20	3.00
4"	lf 200	7.13	7.00
Exposed, ½"	lf 60	2.20	0.60
¾"	lf 2,900	1.70	1.00
1"	lf 650	3.30	1.00
1¼"	lf 1,550	3.42	2.00
2"	lf 850	3.76	2.00
2½"	lf 230	5.70	2.50
3"	lf 420	7.05	3.50
Electrical flexible metal conduit, ½"	lf 60	3.35	0.50
Insulated electrical cable, 600-volt, No. 19/25, f & i, 5-conductor	lf 650	1.24	1.00
7-conductor	lf 250	1.42	1.40
10-conductor	lf 850	1.94	1.50
12-conductor	lf 250	2.20	2.00
Insulated electrical wire, 600-volt, f & i, single conductor No. 12	lf 7,500	0.13	0.07
No. 10	lf 5,600	0.16	0.10
No. 8	lf 1,000	0.22	0.12
No. 6	lf 2,300	0.36	0.18
No. 4	lf 850	0.46	0.23
No. 2	lf 750	0.54	0.30
No. 1/0	lf 300	0.77	0.45
No. 4/0	lf 70	1.60	0.70
5,000-volt main power cables, i	lf 2,000	0.90	0.18
Crane power conductors, insulators, f & i	ls	460.00	300.00
Motor control switchgear, i	ls	3,940	3,600
Station-service transformer, 11 motor starting contractors with push-button stations, & 4 float switches, i	ls	1,322	700.00
Station-service power distribution board DCA, f & i	ls	6,600	5,500
Machine-shop power dist board DCB, f & i	ls	1,910	2,300
Main lighting dist board LCA, f & i	ls	2,076	2,500
Lighting dist panel board, LCB, f & i	ls	260.00	2,600
Incandescent lighting fixtures, f & i	ea 46	30.00	21.00
Fluorescent lighting fixtures, f & i, 48"	ea 34	80.00	60.00
72"	ea 17	106.00	90.00
96"	ea 18	119.00	120.00
Wiring devices other than plug receptacle strips, f & i	ea 82	3.50	6.00
Plug receptacle strips, f	lf 300	1.25	0.80
Installing	lf 270	1.60	0.90
Installing 4-conductor control cable line between Station 2 20 & indicating & alarm equipment cabinet in pump-pl	ls	380.00	800.00
Between Station 119/83 & reservoir float well	ls	128.00	250.00
Telemetering, alarm, & protector equipment at pump-pl, f & i	ls	1,140	1,000
At reservoir float well	ls	1,145	800.00

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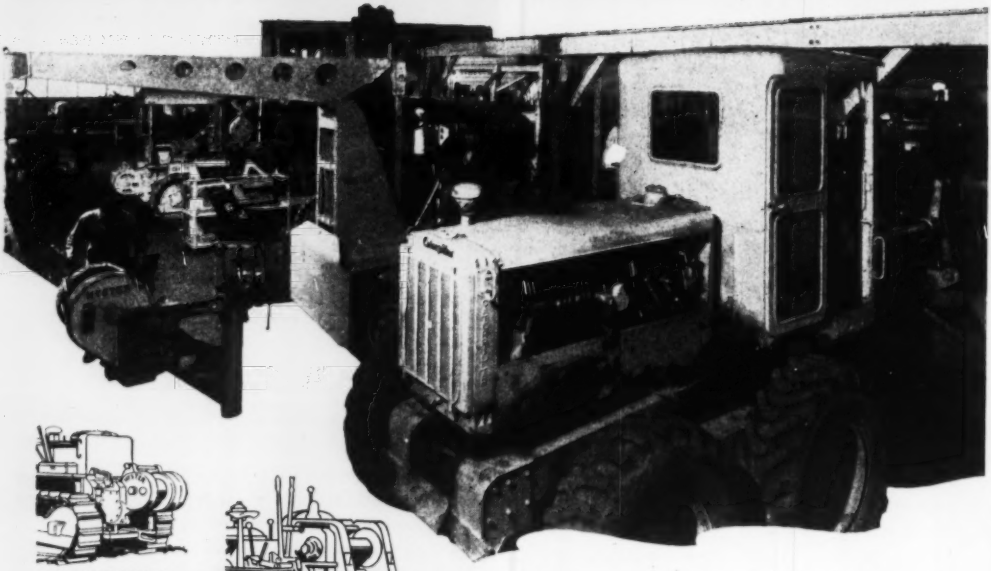

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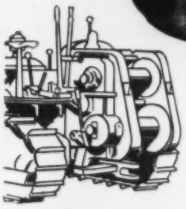
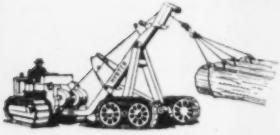


YARDERS and DONKEYS



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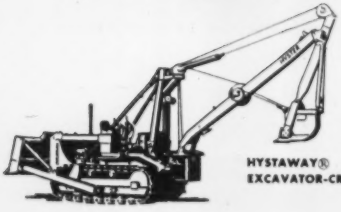

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CONSTRUCTION REPORTS

Bids Asked—Low Bidders—Contracts Awarded

Compiled by Business News Department—Engineering News-Record, 330 W. 42nd St., New York 18, N. Y.

ELSIE EAVES, Manager — *J. A. MAHONEY, Reports* — *M. R. ROESSLER, Statistics*

NEW ENGLAND

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

NEW HAMPSHIRE—Dpt. P. Wks. & Hys., Concord, N. H.,

R. G. Watkins & Son, Mill Yard, Amesbury, Mass. Low Bidder. $85,988. surf. tr. gravel 0.389 mi. and a 2 span, 114 ft. rein.-con. slab bridge on Is; on N. H. 125 in Rochester, Strafford Co. Bids June 25. CD 6/15.

MIDDLE ATLANTIC

BIDS ASKED—BUILDINGS

N. J., Hillside—SCHOOL—B.A. 7/16—Bd. Educ., Hillside Twp., 1085 Liberty Ave., Hillside High School addn., $675,000. CD 12/6/48.

N. Y., Lewisboro—SCHOOL—B.A. 7/19—Lewisboro Union Free School Dist., Boutin Rd., South Salem, school addn.

† **D. C., Wash.**—DENTAL SCHOOL—B.A. 7/31—General Services Admin., Public Buildings Service, General Services Bldg., Wash., D. C., constr. Dental School Bldg. at Howard University, W Street N. W. Plans deposit $24. CD 4/28/47.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **NEW YORK**—Bureau Contracts & Accounts, Albany, N. Y.

Louis Argenio, Inc., 383 Broadway, Newburgh, N. Y., Low Bidder. $69,775, est. $70,000. 1.4 mi. Scotts Corners-Burnside, S. H. 414, FA. RC. 51-31, Orange Co.

Ador & Booth, 1130 Water St., Watertown, N. Y., $68,305, est. $75,000. 4.31 mi. Sabattis-Little Tupper Lake, Pt. 2, FA SS. 51-15, Hamilton Co.

Maxim Krantz, 447 Ft. Washington Ave., New York, N. Y., $247,537, est. $275,000. 6.78 mi., Lyons Village; Geneva and Montezuma Sts. S.H. 5653; Lyons Village; Geneva St., S.H. 1701; Lyons-Clyde S.H. 8027; Clyde Village; Genesee St., S.H. 5676, FA.RC 4127, Wayne Co.,

Kendall Roadway, Inc., 1758 Walden Ave., Buffalo, N. Y., $679,020, est. $842,000. 19.96 mi. Alden-Darien Center S.H. 105-41; Darien Center-Alexander, Pts. 1 and 2, S.H. 1557, 1661; Alexander-Canawaugus, Pts. 1, 2, 3, and 3A, S.H. 8447, 8431, 8450, 9208, FA.RC 51-28, Genesee Co.

Hornell Constr. Corp., Hornell, N. Y., $227,011, est. $257,000. 4.66 mi. Lowman-Waverly, Pts. 1 and 2, S.H. 5048, 5218, FA.RC 51-29, Chemung Co.

Depew Paving Co., 4955 Broadway, Depew, N. Y. $1,125,543, est. $1,185,000. 3.2 mi. service road, 4.13 mi. Parkway Grand Island State Parkway (West River Parkway GISP 49-1) Grand Island State Parkway (West River Parkway, Pt. 2). GISP 51-2P. GISP 51-3. Erie Co.

Hendrickson Bros., Inc., 63 N. Central Ave., Valley Stream, N. Y., $1,389,899, est. $1,595,000. 1.4 mi. access. 3.95 mi. parkway, Northern-Sagtikos State Parkway extens., Constr. 3, N.SAG.S.P. 51-1P, Suffolk Co.

Peckham Road Corp., 50 Hazelam Ave., White Plains, N. Y. $118,697, est. $122,000. 2.01 mi. Mamaroneck village, S.H. 5376-5726, FA.RC. 51-33, Westchester Co.

Received no bids June 20. 0.72 mi. Rome-West Artery (W. Whitesboro St.-Black River Blvd.) FA.C. 50-9, FA.C. 51-2, Oneida Co., est. $35,000. Bids June 20. CD 6/5.

▲ **Delham Constr. Co., Inc.,** 6010 15 Ave., Brooklyn 19, N. Y. Contract Awarded. $1,391,547, sewers 166 and Murray Sts., 17, 160, 21, 27, 28 and 29 Aves., Willets Point Blvd.—Andrew Catapano & Co., 88-36 77 Ave., Glendale, N. Y., $630,550, Cross Island Parkway, Service Roadway, Willets Point Blvd. etc., Queens Boro, NEW YORK, President Queens Boro, 120-55 Queens Blvd., Kew Gardens 15, N. Y. Bids Apr. 27, amended May 11. CD 5/3, under LB.

▲ **PENNSYLVANIA**—State Hy. Dpt., 506 N. Office Bldg., Harrisburg.

The Ray F. Yount Co., Box 101, Kittanning, Pa., Low Bidder. $448,622, repair and wid'n. 56,260 ft. TRWS 422 between Kittanning and Elderton, Armstrong Co.

Ezra Stipp Constr. Co., Love Rd., Scranton, Pa., $129,898, wid'n. pavement and repairs 14,224 ft. T.R. 11 and 309, Luzerne Co.

Larry Constr. Co. Inc., 137 Jefferson Dr., Pittsburgh 28, Pa., $90,173, 2.089 ft. rein.-con. highway in City of Clairton, T.R. 837, Allegheny Co.

Reed & Kuhn, Inc., Elysburg, Pa., $552,848, wid'n. pavement with crushed aggregate base and resurf. and repairs 40,700 ft. T. R. 15, Lycoming Co.

Fyock & Reed, Stoystown, Pa., $140,635, c. conc. wid'n. 26,370 ft. T.R. 53 and 160, Somerset Co.

L & L Constr. Co., R.D. No. 2, Canonsburg, Pa., $192,156, bit. surf. 16,695 ft. T. R. 80, Washington Co.

Herman W. Riebe, t/a Charles Riebe, Lansford, Pa., $143,371, plain c. conc.-bit. surf. wid'n. 12,035 ft. U. S. 6, Wayne Co.

Burrell Constr. & Supply Co., New Kensington, Pa., $235,245, bit. surf. and repairs 22,327 ft. T. R. 31, Westmoreland Co.

Mayer Bros. Constr. Co., 1227 W. 18 St., Erie, Pa., $379,844, surf. existing pavement and repairs 29,140 ft. T.R. 5, 20, Erie Co.

C. S. Yoder, 4 Wine St., Uniontown, Pa., $226,068, wid'n. pavement and repairs 29,734 ft. T.R. 40 and 281, Fayette Co.; $271,093, crushed aggregate base bit. surf. 14,048 ft. T. R. 21, Greene Co.

New Enterprise and Lime Stone Co., New Enterprise, Pa., $189,779, surf. existing highway and repairs 19,714 ft. T. R. 36, northwest of Altoona, Blair Co.

A. B. Cole, Meshoppen, Pa., $328,015, wid'n. pavement and other repairs, T.R. U.S. 6 between Troy and Burlington, 24,837 ft., Bradford Co.

Lawrence Sherbine, Box 66, Wilmore, Pa., $106,771, construct crushed aggregate with bit. surf. 3,713 ft. T. R. U.S. 22, Cambria Co.

E. M. Brown, Inc., 11 Guelich Ave., Clearfield, Pa., $138,914, wid'n. pavement and repairs 9,884 ft. T.R. 322, east of Clearfield Boro to Barfield Co.

W. L. Dunn Constr. Co., Adams St., Cochranton, Pa., $164,947, wid'n. pavement and repairs 17,822 ft. T.R. 78, from Cochranton Boro northeasterly Crawford Co.

Herbert R. Imbt, Inc., P.O. Box 155, State College, Pa., $303,143, wid'n. pavement and repairs, 48,406 ft. T.R. 68 from McKean Co. line southwest, Elk Co.

Western Pennsylvania Asphalt Paving Co., P.O. Box 1381, Erie, Pa., $102,839, wid'n. pavement and repairs 3.621 ft. U.S. 6, in Union City and northerly, Erie Co. Bids June 28. CD 6/6.

General State Auth., 18 and Herr Sts., Harrisburg, Pa., rejected bids June 13. L.B. $69,659. imprv. sanitary sewerage sys. at Woodville State Hospital, WOODVILLE, PA. Will re-advertise. CD 6/18, under LB.

BUILDINGS

LOW BIDS AND CONTRACTS

Marphil Realty Corp., 5566 Kings Hy., Brooklyn, N. Y. Owner Builds. Approx. $300,000. 22 two family HOUSES, 5909-23 Beverly Rd. and 251-81 E. 59 St., BROOKLYN, N. Y. Kallich & Weinstein, 161 Remsen St., Brooklyn 2, N. Y., archts.

▲ **T. G K Constr. Co. Inc.,** 55 W. 42 St., New York 18, N. Y. Contract Awarded. $1,554,500. P.S. 109 Popham Ave. and Palisade Pl. (Spec. Nos. 10, 11, 12 and 13 of 195, and Amendment No. 1). NEW YORK, N. Y. Supt. School bldgs., Design & Construction, 49 Flatbush Ave., exten., Brooklyn 1, N. Y. Bids Apr. 24. CD 6/1, under LB.

▲ **McCloskey & Co.,** 1620 W. Thompson St., Phila., Pa., Low Bidder $1,278,000 general constr. HIGH SCHOOL for Plymouth-Whitemarsh Joint School Bd., NORRISTOWN, PA. State Public School Bldg. Auth., 1400 N. Cameron St., Harrisburg, Pa. Bids June 28. Davis Dunlap & Carver, 1717 Samsom St., Phila. 3, Pa., archts. C. R. Greiner, c/o owner, ch. engr.

William P. Doall, Inc., 123 S. Murray St., Bangor, Pa. Low Bidder. $679,000. general constr. Secondary SCHOOL for Palisades Joint School Bd., REVERE, PA. State Public School Bldg. Auth., 1400 N. Cameron St., Harrisburg, Pa. Bids June 28. CD 6/13.

Jos. F. Hughes & Co., Inc., 509 11 N. Charles St., Baltimore, Md. Low Bidder. $635,331, est. $500,000, brick, concrete cinder block Villa Cresta SCHOOL, Parkville Section, TOWSON, MD. Baltimore Co. Bd. Educ., Aigburth Rd., Towson, Md. Henry Powell Hopkins, 10 E. Mulberry St., Baltimore, Md., archt.

▲† **National Capitol Housing Auth.,** 1737 L. St., N.W., Wash., D. C., rejected bids June 21, 160-unit DWELLINGS for low-income families called the Richardson Dwelling Proj., 33 and Clay Sts., N.E., L.B. $2,043,800 WASH., D. C. Will re-advertise. CD. 6/25, under LB.

SOUTH

BIDS ASKED—HEAVY CONSTRUCTION

Ga., Augusta—B.A. 7/20—City, c/o Purch. Agt., City Hall, 500,000 gal. elevated steel water tank at intersection of Washington and Berckman Roads. Extended date.

BIDS ASKED—BUILDINGS

Ga., Soperton—HOSPITAL—B.A. 7/31—Treutlen Co., Soperton, hospital. Plans deposit $50. Gregson & Ellis, Mortgage Guarantee Bldg., Atlanta, archts.

▲ **Ala., Selma**—HOUSING—B.A. 8/2—U. S. Eng., Post Office Bldg. Atlanta, Ga., construct, manage and finance 225 Wherry act HOUSING units at Craig Air Force Base. Plans deposit $40. Extended date. CD 5/2.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **VIRGINIA**—State Hy. Dpt., Richmond,

T. E. Brown, Charlotte, N. C. Low Bidder. $84,850. 0.29 mi. 36 ft. pavement and 22 ft. bridge to eliminate a bottleneck on main route, U. S. 460 at Farmville, Prince Edward Co.

Asphalt Paving Service, Inc., 1910 Hamilton St., Richmond, Va. $366,676. 2.29 mi. divided highway west of west city limits of Richmond, U. S. 360, Chesterfield Co.

A. J. Ponton, Marion, Va. $157,637. Grading, paving 3.78 mi. Route 172, between Messick and Poquoson, York Co.

Albert Bros., 1102 Tennessee St., Salem, Va., $602,880. c. conc. 3.26 mi. and 505 ft. bridge over Otter River, north of Altavista, U. S. 29, Campbell Co.

Ames & Webb, Inc., 3145 Broad Creek Rd., Norfolk, Va. $496,924. 2.73 mi. four-lane divided constr. U. S. 58 between Flemings Corner and 1.49 mi. west of Laskin Rd., Princess Anne Co. Bids June 26. CD 6/18.

▲ **NORTH CAROLINA**—State Hy. & Pub. Wks. Comn., Raleigh.

J. K. Cecil & Sons, Box 189, Lexington, N. C. Low Bidder. $513,462, STBC or traffic bound macad. and b. conc. binder and surf. 12.25 mi. U.S. 15 and 501, Proj. 4001, F-99 (13), BS 6-6-50-136, Chatham Co.

Nello L. Teer, Box 113, Durham, N. C., $115,811, est. $75,000-$100,000, traffic bound macad. or PCSBC, bit. surf. tr. or b. conc. surf., 3.45 mi. Proj. 5-204, S-119 (5), Durham Co.

A. C. Shearer Co., Box 128, Chapel Hill, N. C., $111,451, est. $100,000-$125,000, traffic bound macad. or PCSBC, bit. surf. tr. or b. conc. surf. 6.03 mi. Proj. 5-254, S-471 (1), 5-9-45-206, Granville Co.

Brown-Coble Constr. Co., Lexington, N. C., $233,950, est. $175,000-$200,000, c. conc. 2.82 mi. U.S. 158, Proj. 5385, F-56 (3), Guilford Co.

W. E. Graham & Sons, Box 286, Cleveland, N. C., $781,199, est. $400,000-$500,000, traffic bound macad. and bit. surf. tr. 6.15 mi. U.S. 321, Proj. 7197, F-432, F-437 (4), Caldwell, Watauga Counties.

Barrus Constr. Co., Box 561, Kinston, N. C., $80,438, est. $75,000-$100,000, sand asph. surf. 11.3 mi. three sections county roads, Proj. 2-9-1-211, 2-9-21-226, Greene and Lenoir Counties.

F. D. Cline Constr. Co., Box 349, Raleigh, N. C., $108,546, est. $75,000-$100,000, b. conc. binder, surf. course 7.62 mi. U.S. 301, U.S. 70, BS 4-6-36-148, Code 5900-412, Code 4900-439, Johnston Co.

Dickerson, Inc., Box 448, Monroe, N. C., $154,209, STBC, bit. surf. tr. or sand asph. or b. conc. surf. 14.06 mi. Proj. 4-9-37-224, Nash Co.; $89,442, est. $75,000-$100,000, bit. surf. tr. 25.9 mi. 19 sections county roads, Proj. 10-9-208, Buncombe Co.; $61,742, est. $50,000-$75,000, sand asph. or b. conc. surf. 8.6 mi. Proj. 2-9-24-217, Pitt Co.

Gilbert Eng. Co., Inc., 638 Meeting St., Statesville, N. C., $77,150, est. $75,000-$100,000, STBC, bit. surf. tr. or b. conc. surf. 13.75 mi. Proj. 9-9-82-213, Iredell Co.; $60,433, est. $50,000-$75,000. STBC, bit. surf. tr. or b. conc. surf. 8.87 mi. Proj. 9-9-82-218, Iredell Co.

PROJECTS COVERED

Projects—By Size

Construction projects here reported cover the United States and Canada, are of these minimum sizes or larger: water supply, earthwork, waterways $34,000; other public works $60,000; industrial buildings $82,000; other buildings $300,000.

Classes of Construction

(Name in order of Listing)

Water Supply	Latin America
Sewers, Waste Disposal	Public Buildings
Bridges	Commercial Buildings
Streets & Roads	Industrial Buildings
Earthwork, Waterways	Unclassified

Stages Reported

PROPOSED WORK: Including appointment of engineers or architects.

BIDS ASKED (new announcements only). For full calendar, see also preceding issues of ENR.

LOW BIDDERS: On jobs below $500,000 value all low bidder news will be the final reports published on the projects involved except where award is not made to the low bidder. In this case, a supplementary contract award report will be published.

CONTRACTS AWARDED: Except awards to low bidders previously reported in low bidder stage.

Dates shown are of issue in which last previous report was published.

Symbols and Abbreviations Include:

†	Federal Government
▲	Project of $1,000,000 or over.
B.A.	Bids Asked
ENR	Engineering News-Record
CD	Engineering News-Record Construction Daily

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THE ATLANTIC PNEUMATIC ROCK BREAKER

Splits Large Rocks and Boulders quickly
No Plugs and Feathers — No Explosives
Nearly 4½ times faster

- Effective quick action in removing stones, boulders and rocks from excavations and ditches.
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"Gunite" . . . . . the sand-cement product of the "CEMENT GUN," for Concrete and Masonry Repairs, Pre-Stressed Tanks, Steel Encasement and for lining Reservoirs, Sewers and Tunnels.

CEMENT GUN COMPANY
"GUNITE" CONTRACTORS
GENERAL OFFICES—ALLENTOWN, PENNA., U.S.A.
MANUFACTURERS OF THE "CEMENT GUN"

Ballenger Paving Co., Box 1046, Greenville, S. C., $82,540 est. $50,000-$75,000, traffic bound macad. or PCSBC, bit. surf. tr. or b. conc. surf. and structures 2.32 mi. Proj. S-401 S-486 (1), Person Co.; $96,203, est. $50,000-$75,000, traffic bound macad. or PCSBC, bit. surf. tr. or b. conc. surf. 3.49 mi. Proj. S-403, S-492 (1), Person Co.

received no bids June 26, grading and structures 7.79 mi. Proj. 1-401, S-459 (1), Gates Co. Bids June 26. CD 6/15.

† **Resident Officer in Charge of Construction**, Cherry Point, N. C. rejected bids May 15, 4 combat ready load magazines, Spec. 28720, CHERRY POINT, N. C. CD 5/2.

† **Grannis & Sloan**, Fayetteville, N. C., Low Bidder, $229,320, paving imprvs., R.T.C. area motor pool, Eng 31-001-51-130, FORT BRAGG, N. C. Contracting Officer, Fort Bragg, N. C., Bids June 18.

▲ **Roy Richards**, Carrollton, Ga., Contract Awarded, $690,170, Proj. No. IV-A***Sumter Builders, Sumter, S. C., $568,242, Proj. IV-B, rural distr. lines, SOUTH CAROLINA Central Electric Power Assn., Columbia, S. C. CD 5/8, under LB.

Bibb Co., c/o Ted Ryther, co. engr., Court House, Macon, Ga., Owner Builds, $250,000, wid'n. Forsyth Rd., MACON, GA. CD 7/29/46.

† **Byck Electric Co.**, 310 E. Bay St., Savannah, Ga., Contract Awarded, $102,944, navigational aids at Hunter Air Force Base, SAVANNAH, GA. U. S. Eng., P. O. Box 889, Savannah, Ga.

▲ **FLORIDA**—State Hy. Dpt., Bradenton Memorial Pier Bldg., Bradenton.

Hardaway Contg. Co., P. O. Box 1369, Columbus, Ga., Low Bidder, $7,614,236, substructure.

Virginia Bridge Co., 825 Madison Ave. S.E., Roanoke, Va. $3,873,991, superstructure, both for lower Tampa Bay Bridge, Manatee Co.

Benton & Co., Inc., 870 3 St. S., St. Petersburg, Fla. $241,828, hydraulic embankment 3 mi. from Structure "C" in Lower Tampa Bay to Terra Ceia Island and across Terra Ceia Bay, Rd. 55, Manatee Co. Bids June 26. CD 6/18.

▲† **L. G. De Felice**, Nettleton Ave., North Haven, Conn., Contract Awarded, $7,140,000, paving two 8,000 ft. runways, Cecil Field Auxiliary Air Field, NOY 27261, Spec. 29497, JACKSONVILLE, FLA. U. S. Naval Station, Charleston, S. C. Bids June 8. CD 6/14, under LB.

▲† **Henley & Beckwith, Inc.**, 2628 Pearl St., Jacksonville, Fla. Contract Awarded, $796,000, piping and plumbing at naval bulk petroleum terminal, Trout River, Naval Bulk Fuel Station; **George D. Auchter Co.**, foot of E. 56 St., Jacksonville, Fla., $892,500 office and warehouse bldg., piers and paving for fuel storage facilities, JACKSONVILLE, FLA. Dpt. Navy, Naval Base, Charleston, S. C. Bids June 21. CD 6/29, under LB.

▲† **Sixth Naval Dist.**, Naval Base, Charleston, S. C., rejected bids June 5, exten. runways at Jacksonville Naval Air Station, JACKSONVILLE, FLA. L. B. $3,146,137 CD 6/13, under LB.

† **M. F. Comer Bridge & Foundry Co.**, 990 N.W. North River Dr., Miami, Fla. Contract Awarded, $618,252, reconstr. Pier D-3, KEYWEST, FLA. Dpt. Navy, Charleston Naval Base, Charleston, S. C. Bids June 12. CD 6/18, under LB.

Chas. E. Dawson, 221 N. E. 30 St., Miami, Fla., Contract Awarded, $60,000, radio station addn., MIAMI BEACH, FLA. Radio Station WKAT, 1759 Bay Rd., Miami, Fla. CD 5/11, under LB.

† **R. E. Clarson, Inc.**, 2000 13 Ave. N. St. Petersburg, Fla., Low Bidder, $307,423, rehabilitation 33 buildings (4th Increment) SANFORD, FLA. Officer-In-Charge Naval Air Station, Sanford, Fla. Bids June 20.

▲† **J. A. Jones Constr. Co.**, 209 W. 4 St., Charlotte, N. C. Low Bidder, $16,790,000. HOUSING for addnl. airmen, incl. 14 masonry bldgs., with mess room for 500 men, 3 story dormitory and utility facilities, at Keesler Air Force Base, Inv. 51-93, BILOXI, MISS. U. S. Eng., Box 1169, Mobile, Ala. Bids June 11. CD 5/18.

KENTUCKY—State Hy. Dpt., Frankfort,

H. K. Williams, 4141 Park Blvd., Louisville 9, Ky., Contract Awarded, $97,753, bit. surf., Class I (uncrushed river gravel aggregate 14.553 mi. SP Group 3, (1951), Daviess Co., Bids June 8. CD 6/18, under LB.

Traylor Bros. Inc., Mt. Vernon Rd., Evansville, Ind., Low Bidder, $162,834, bit. surf., Class 1, 0.439 mi. Woodville-West Paducah Rd., AA-1 (1), Part 3, SP 73-292, McCracken Co.

H. C. Adams, 1006 Delaware Ave., Lexington, Ky., $389,240, high type surf. 2.114 mi. Washington St. in Shelbyville, FI 172 (10), FI 117 (20), SP 106-306.

R. B. Tyler Co., 1446 Levering St., Louisville, Ky., $126,608, bit. surf., Class I (crushed gravel aggregate), Fulton Co.

Marlowe Constr. Co. Inc., 1st Natl. Bank Bldg., Lexington, Ky., $125,471, traffic bound limestone 7.899 mi. RS 102-377 and Rs 102-477, Rockcastle Co., $83,757, traffic bound limestone 4.642 mi. The Level Green-Hansford-Billows Rd., RS (102-377) Rockcastle Co.

Carey Constr. Co., 613 Citizens Bldg., Lexington, Ky., $61,524, bit. surf. Class I and rock asph. seal 8.038 mi. SP Group 20 (1951), Fayette, Bourbon and Scott Counties, 1.546 mi. SP Group 21 (1951) Nicholas Co.

State Contracting & Stone Co., Inc., Hartford, Ky., $118,024, bit. surf. Class I, 15.891 SP Group 25 (1951) Muhlenberg Co.

The Allen Co., Inc., P. O. Box 112, Winchester, Ky., $78,152, bit. surf., Class I 16.9 mi. SP Group 23 (1951), Rowan and Carter Counties.

Middle West Roads Co., P. O. Box 30, Noblesville, Ind., $309,801, bit. surf. Class I, rock asph. surf. 30.322 mi. SP Group 26 (1951) Warren and Edmonson Counties.

H. K. Williams, P. O. Box 37, Louisville, 9, Ky., **$84,409,** bit. surf. Class I and rock asph. seal 9.993 mi. SP Group 32 (1951), Owen Co.

Licking River Limestone Co., West Liberty, **$109,068,** traffic bound limestone 3.326 mi. The Page-Ferndale Rd. and Hancus Creek Rd., RS 97-504) (7-604), Bell Co.

O. L. Depp, Owensboro, Ky., **$75,946,** traffic bound limestone 4.36 mi. The Iuka-Tucker-Temple-Dycusburg Rd., RS 70-430, Livingston Co.

Mott, Blackburn & Ferguson Constr. Co., Fredonia, Ky. **$73,817,** local bank or creek gravel, RS 70-430, Livingston Co. Bids June 22. CD 6/7.

Mountain Rural Telephone Co-operative, Ezel, Ky., Owner Builds. Approx. **$455,000.** telephone lines, EZEL, KY.

▲† **R. P. Farnsworth Co.,** 1515 S. Salcedo St., New Orleans, La. Contract Awarded, **$6,185,526,** add. mess hall and barracks at Naval Training Center, NOY 27274, MILLINGTON, TENN. Pub. Wks. Office, Box 364, Charleston, Naval Base, S. C. Bids June 15. CD 6/21, under LB.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Frank H. Conner & Co.,** 711 S. Tyrone St., Charlotte, N. C., Contract Awarded. **$2,428,550.** Housing, Project VA 6-5, NORFOLK, VA. Norfolk Redevelopment & Housing Auth., Dickson Bldg., Norfolk, Va. Bids June 13. CD 6/20, under LB.

▲ **Goode Constr. Corp.,** Builders Bldg., Charlotte, N. C., Contract Awarded, **$2,879,000.** HOUSING Proj. VA 11-2, ROANOKE, VA. Roanoke Redvelopment & Housing Auth., 401 Luck Ave., Roanoke, Va. Bids June 5. CD 6/14.

Hendersonville Hospital Assoc., Hendersonville, N. C., cancelled bids to have been opened June 28, 70-bed HOSPITAL, HENDERSONVILLE, N. C. CD 5/24.

▲ **Cecil's, Inc.,** Spartanburg, S. C. Contract Awarded, **$934,725,** 116 HOUSING units, SPARTANBURG, S. C. Spartanburg Housing Auth., Spartanburg, S. C. Bids June 19. CD 6/27, under LB.

Church of Holy Family, 312 12 St., Columbus, Ga., rejected bids, Catholic Elementary SCHOOL, COLUMBUS, GA. CD 5/24, under LB.

Archer Bros. Inc., 734 Boulevard N. E. Atlanta, Ga., Low Bidder, **$857,000,** HOSPITAL, DUBLIN, GA. Laurens Co., Dublin, Ga. Bids June 27. CD 6/5.

▲ **J. N. Bray Co.,** Valdosta, Ga. Contract Awarded, **$1,076,793,** HOUSING Units, VALDOSTA, GA. Valdosta Housing Auth., Valdosta, Ga. Bids June 26. CD 7/2, under L.B.

J. Y. Gooch Co., Inc., Congress Bldg., Miami, Fla. Contract Awarded, Approx. **$300,000,** dial toll OFFICE addn., KEY WEST, FLA. Southern Bell Telephone Co., c/o contractor.

Sanford Kay Constr. Co., 420 Lincoln Rd., Miami, Fla. Contract Awarded. **$450,000.** 80 APARTMENT UNITS, MIAMI, FLA. Surpise Lake & Lerod Apartments, c/o contractor. CD 6/1.

▲ **J. L. Ewell Eng & Constr. Co.,** P. O. Box 791, Lakeland, Fla. Contract Awarded, **$928,000,** HOUSING units, SANFORD, FLA. Sanford Housing Auth., Sanford, Fla. Bids June 23. CD 7/2, under LB.

Southeastern Mfg. Co., Tuscaloosa, Ala. Contract Awarded **$748,900,** Housing Projs. ALA 67-1 and ALA 6-2, 100 HOUSING UNITS, ATHENS, ALA. Athens Housing Auth., Athens, Ala. Bids June 27. CD 6/15.

▲ **Daniel Constr. of Alabama, Inc.,** 822 7 Ave. S., Birmingham, Ala. Low Bidder. **$1,306,975,** women's DORMITORY, AUBURN, ALA. Alabama Polytechnic Institute, Auburn, Ala. Bids June 26. CD 6/6.

Perusini Constr. Co., 1720 28 Ave. S., Birmingham, Ala. Contract Awarded. **$452,229,** 60 HOUSING units, BOAZ, ALA. Boza Housing Auth., Boza, Ala. Bids June 22. CD 6/6.

Southeastern Mfg. Co., Tuscaloosa, Ala. Contract Awarded. **$350,950,** 50 HOUSING units, CARBON HILL, ALA. Carbon Hill Housing Auth., Carbon Hill, Ala. Bids June 22. CD 6/15.

▲ **Jones & Hardy,** Montevallo, Ala. Contract Awarded, **$1,044,447,** HOUSING Units, DOTHAN, ALA. Dothan Housing Auth., Dothan, Ala. Bids June 22. CD 6/29, under LB.

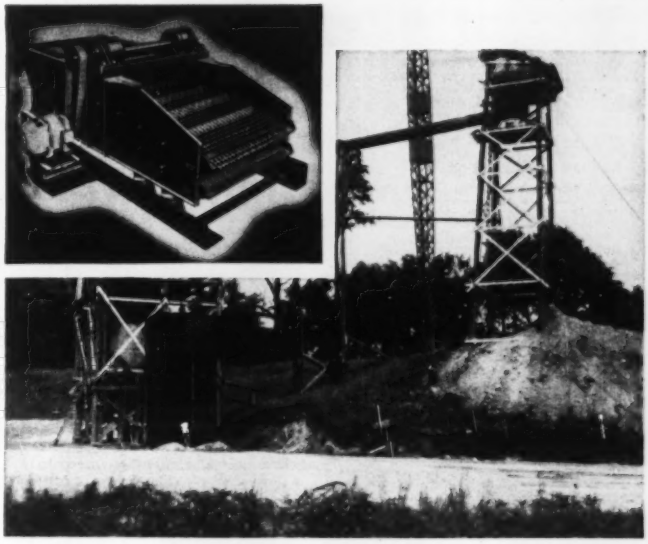
▲ **Morgan Holloman Constr. Co.,** Tuscaloosa, Ala. Contract Awarded. **$1,914,400,** HOUSING Projects ALA 54-1, 175 units and ALA 54-2, 75 units, FLORENCE, ALA. Florence Housing Auth., Florence, Ala. Bids June 14. CD 6/22, under LB.

Pittman Constr. Co. Inc., 2925 Franklin Ave., New Orleans, La., Contract Awarded, **$964,833,** HOUSING Project Miss 5-4, 120 housing units, BILOXI, MISS. Biloxi Housing Auth., Biloxi, Miss. Bids May 22. CD 5/29, under LB.

▲ **Daniel Constr. Co.,** 429 Main St., Greenville, S. C. Contract Awarded. **$1,642,394,** HOSPITAL, COLUMBIA, TENN. Maury Co., Columbia, Tenn. Bids June 4. CD 6/15, under LB.

Pennington & Mackabee, LaFollette, Tenn., Contract Awarded. **$729,000.** HOUSING units, LAFOLLETTE, TENN. LaFollette Housing Auth., LaFollette, Tenn. Bids June 19. CD 6/28.

† **Conn-Structors, Inc.,** P. O. Drawer G, Miami, Fla., Contract Awarded, **$775,400.** rehabilitation 500 DWELLING units, OAK RIDGE, TENN. U. S. Atomic Energy Comn., P. O. Box 3, Oak Ridge, Tenn. Bids June 20. CD 5/31.



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Routh produces sixs sizes of gravel, two sizes of sand, employing a split bottom deck—5/32 and No. 4 screen—on the bottom deck of the four-decker, with a blending table below, to give maximum flexibility at minimum cost.

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DEISTER MACHINE CO.

FORT WAYNE 4, INDIANA

MIDDLE WEST

BIDS ASKED—HEAVY CONSTRUCTION

Mo., St. Louis—B.A. 7/17—City, Frank J. McDevitt, pres. Bd. Pub. Service, 304 City Hall, Zone 3, (A) furnish, install incinerator unit with accessories, near foot Meramec St. (B) 1 heat exchanger with accessories (C) 1 gas turbine with accessories, $780,000. Walter Crecelius, 301 City Hall, Zone 6, ch. engr. CD 8/27/46.

BIDS ASKED—BUILDINGS

▲ **Mich., Grand Haven**—SCHOOL—B.A. 7/17—City, Bd. Educ., brick, steel, concrete high school, incl. auditorium and gymnasium addn., $1,500,000. Warren S. Holmes Co., 2200 Olds Tower, Lansing, archts. CD 1/31.

▲ **Wis., Chippewa Falls**—COURT HOUSE—B.A. 7/17—Chippewa Co., Chippewa Falls, 2 story, bsmt., 95x190 ft. court house, $1,000,000. Foeller, Schober, Bernes, Safford & Jahn, 310 Pine St., Green Bay, archts. CD 12/19/50.

Wis., Rothschild—SCHOOL—B.A. 7/21—Joint School Dist. 1, 2 story, part bsmnt. 80x388 ft., Junior and Senior High School and 1 story 123x135 ft. gymnasium, $860,000. Plans deposit $25. E. A. Stubenrauch, 712 Erie Ave., Sheboygan, Wis., archt. CD 1/22/46.

Mich., Ionia—HOSPITAL—B.A. 7/24—Ionia County Memorial Hospital, Ionia, 75 bed, brick, steel, concrete hospital, $750,000. Lewis J. Sarvis, 201 Bailey Bldg., Battle Creek, archts. CD 5/1.

Wis., Union Grove—EMPLOYEES—B.A. 7/26—State Dpt. P. Welfare, Madison, 3 story, bsmnt., employees bldg. at South Colony and Training School, $500,000. Plans deposit $50. Wm. G. Herbst & Assoc., 1244 N. Frank St., Milwaukee 2, archts. R. C. Kirchhoff, Madison, state archt. CD 2/6/49.

▲ **Mich., Van Dyke**—HIGH SCHOOL—B.A. 7/23—Bd. Educ. Warren Twp., Dist. 5, Van Dyke, brick, steel, concrete Lincoln HIGH SCHOOL, $1,500,000. Plans deposit $50. Earl G. Meyer, 806 Farwell Bldg., Detroit, archt. CD 12/7/50.

Ill., Arlington Heights—SCHOOL—B.A. 7/24—School Dist. 25, 301 South St., 1 story, brick, stone school, $700,000. Ganster & Henninghausen, 222 Washington St., Waukegan, archts.

SOON LETS CONTRACT—BUILDINGS

Ill., Chicago—FORGE—Ford Motor Co., 3000 Schaefer Rd., Dearborn, Mich., soon lets contract two forge bldgs., Crawford and 73 Sts., $600,000. Albert Kahn Associated Architects & Engineers, Inc., New Central Bldg., Detroit, Mich., engr. CD 2/27.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

† **Rudick & Kreidler**, Miller Ave., Youngstown, O. Contract Awarded. Approx. $400,000. Readiness hangar and remote radio bldgs., at northwest end of jet fighter runway. W. B. Gibson Co., 200 N. Chestnut St., Warren, O. Approx. $550,000, readiness bldg., alert hangar, crash and fire equip. bldg., at northwest end of jet fighter runway at Youngstown Airport. YOUNGSTOWN, O. U. S. Eng., Madison Ave. and B St., W., Huntington, W. Va., Awarded June 25. CD 6/5.

† **Hough-Cowgur & Co., Inc.**, 320 N. 4 St., St. Louis 2, Mo. Low Bidder, $178,809. Restoration and timber piling club dikes at Devils Island, Willard and Scherman, Mississippi River. CIVENG 23-065-51-80, ILLINOIS and MISSOURI. U. S. Eng., 834 U. S. Court House and Custom House, 1114 Market St., St. Louis 1, Mo. Bids June 26.

▲ **Overland Constr. Co.**, 205 W. Wacker Dr., Chicago, Ill. Low Bidder, $3,277,428, superstructure of 4-leaf trunnion bascule bridge over Chicago River, belonging to Congress St. Superhighway Project. CHICAGO, ILL. City, City Hall, Chicago 2, Ill. Bids June 26. CD 5/31.

MICHIGAN—State Hy. Comr., 222 Townsend St., Lansing, Zone 13.

Vinton Constr. Co., Cadillac, Mich. Low Bidder, $119,755. Grading, drainage and stabilized aggregate 2.1854 mi. M-120, SS 30-35, C1 15-706 21, Camden, Hillside Co.

Sargent Constr. Co., 2840 Bay Rd., Saginaw, Mich., $233,333, est. $250,000 c. conc., 2.99 mi. on M-25, Fe 12-43, C1 (5-F-12), Sebewaing, Huron Co.

P. Vander Veen & Son, 2020 Newark St. S. E., Grand Rapids, Mich., $85,086, aggregate surf. course 2.46 mi. SS 41-36, CS 75-634 21, Walker, Kent Co.

Taber-Carmody Co., 125 Front St., N. W., Grand Rapids, Mich., $61,877, est. $55,000, single and double seal 28.5 mi. M-55 and M-42, Group 14 A, Lake City, Missaukee and Wexford Counties.

Michigan Colprovia Co., 2020 Chicago Dr., S. W., Grand Rapids, Mich., $83,744, est. $80,000, single-double seal 47.3 mi. M-66, M-36, M-57 and M-44, Gratiot, Montcalm, Kent.

West Shore Constr. Co., Zeeland, Mich., $78,300, est. $75,000, single-double seal and prime 27.1 mi. M-20, M-37, M-46 and U. S. 10, Group 12A, Wooster-Newago and Lake Counties.

Hertel-Deyo Co., 5250 Division St. S., Grand Rapids, Mich., $72,111, est. $75,000, surf. 4.46 mi. 22 and 24 Aves., CS 70-63 C1 (5-737 1), CS-70-63 C1 (5-738 1), Jamestown-Blandon-Heeland, Ottawa Co. Bids June 20. CD 6/7.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **E. Mast & Sons**, 1000 Greenwood St., Zanesville, O. Low Bidder, $1,160,739. 4 story brick concrete HIGH SCHOOL, ZANESVILLE, O. Bd. Educ., Zanesville, O. Bids June 19. Outcalt, Guenther & Assoc., 13124 Shaker Square, Cleveland, O., archts. CD 2/4/49.

Ceco Steel Products Co., 5601 W. 26 St., Cicero, Ill. Owner Builds, $400,000. Design and construct FACTORY addn., CICERO, ILL. Awarded June 19. CD 1/10/50.

▲ **Harvey A. Hanson**, 1851 Elston St., Chicago 14, Ill. Contract Awarded, $1,013,000, with 11 subs, Ogden SCHOOL, Oak and Dearborn Sts., CHICAGO, ILL. Bd. Educ., 228 N. La Salle St., Chicago 1, Ill. Awarded Apr. 9.

Michuda Bros. Constr. Co., 11351 S. Michigan Ave., Chicago 2, Ill. Contract Awarded, $620,000 with 11 subs Rogers Elementary SCHOOL, 7345 N. Washtenaw St., CHICAGO, ILL. Bd. Educ., 228 N. La Salle St., Chicago 1, Ill. Bids June 12, awarded June 25. CD 6/25, under LB.

Welso Constr. Co., 2345 S. Pulaski St., Chicago 23, Ill. Contract Awarded, $500,000, 1 story 55,000 sq. ft. FACTORY, CHICAGO, ILL. Cans Inc., 3217 W. 47 Pl., Chicago 32, Ill. A. Epstein & Sons, Inc., 2011 Pershing Rd., Chicago 9, Ill., engr. Awarded June 18.

Chas. B. Johnson & Son, Inc., 6 N. Michigan St., Chicago 21, Ill. Contract Awarded, $900,000, 56-bed Community HOSPITAL, EVANSTON, ILL. Community Hospital of Evanston, 2026 Brown Ave., Evanston, Ill. Bids June 6. CD 6/18, under LB.

▲ **Marconi Constr. Co.**, 2848 Lincoln St., Franklin Park, Ill. Owner Builds, $3,500,000, 400 HOMES near Grand and Nevada Sts., FRANKLIN PARK, ILL. Awarded June 25.

▲ **Kuchard & Assocs.**, 221 Jewett Bldg., Des Moines, Ia. Low Bidder, $1,875,630, HOUSING, Proj. LaSalle 14-4, and 14-7; Marseilles, 14-6; Oglesby 14-2 and Streator 14-9, LASALLE, ILL. Housing Auth., La Salle Co., Ottawa, Ill. Bids June 20. CD 6/12.

▲ **Siesel Constr. Co.**, 514 E. Ogden St., Milwaukee 2, Wis. Low Bidder, $1,917,403, general contract, CUSTODIAL bldgs., KITCHEN and ADMINISTRATION units, at South Wisconsin Colony and Training School, UNION GROVE, WIS. State Dpt. P. Welfare, 128 S. State St., Madison, Wis. Bids June 21. CD 5/31.

▲ **O. W. Burke Co.**, 1032 Fisher Bldg., Detroit, Mich. Low Bidder, $1,913,000. Contr. CC-2, caisson work and sub-structure, CITY COUNTY BLDG., DETROIT, MICH. City County Bldg. Auth., Mayor Cobo, chn., Detroit, Mich. Bids June 26. CD 5/25.

▲ **Bethlehem Steel Corp.**, 3-236 General Motors Bldg., Detroit, Mich. Contract Awarded, $2,450,000. furnish, erect 9,000 tons structural steel CITY-COUNTY BLDG., DETROIT, MICH. City-County Bldg. Auth., Mayor Cobo, chn., Detroit, Mich. Bids Apr. 24. CD 6/19, under LB.

Albert A. Albrecht Co., 1217 Penobscot Bldg., Detroit, Mich. Contract Awarded, $560,000. 2 story, rein. con. GARAGE units, Maintenance Facilities, DETROIT, MICH. Continental Baking Co., 2915 Grand River, Detroit, Mich. Bellman, Gillett & Richards, 518 Jefferson St., Toledo, O., archts.

WEST OF MISSISSIPPI

BIDS ASKED—HEAVY CONSTRUCTION

▲ **Colo., Denver**—B.A. 7/24—City and Denver Co., City and County Bldg., North East Storm Sewer District constr. storm sewers, incl. approx. 2500 ft. 60 in. RCP, previous line; 8,500 ft. 72 in. RCP; 6,500 ft. 54- to 60-in. RCP, 23,000 ft. 36- to 48-in. RCP, 9,000 ft. smaller pipe, 90 manholes $1,016,600. Plans deposit $15. Terry Owens, City and County Bldg., city engr.; adv. ENR 6/28. CD 4/13.

Tex., Commerce—B.A. 7/24—East Texas State Teachers College, Commerce, WW imprvs. extens. $35,000. CD 6/29/50.

BIDS ASKED—BUILDINGS

Colo., Durango—HOSPITAL—B.A. 7/19—Sisters of Mercy, Durango, Colo., 2 and 3 story, full bsmnt., 12,800 sq. ft., 1 and 2 story, 500 sq. ft. 3 story V-shaped hospital addn., chapel, etc. $781,000. Plans deposit $25. Walter De Mordaunt, 738 Thatcher Bldg., Pueblo, Colo., engr. CD 11/22/49.

▲ **Kan., Wichita**—SCHOOL—B.A. About 7/23—Bd. Educ., 428 S. Broadway, Charles Curtis School, $1,100,000. Hibbs & Robinson, 519 S. Broadway, archts. CD 4/12.

▲ **Kan., Wichita**—SCHOOL—B.A. 7/23—Bd. Educ., Wichita, Charles Curtis School, $1,100,000. Hibbs & Robinson, 519 S. Broadway, archts. CD 5/23.

Colo., Denver—SCHOOL—B.A. 8/8—School Dist. 1, 414 14 St., 2 story brick, 75,000 sq. ft. Grand Junior High School, S. Pearl St. and E. Colorado Ave. Approx. $300,000. Gordon D. White and Charles H. Overholt, 615 Columbine St., engrs.

Colo., Denver—SCHOOL—B.A. 8/22—School Dist. 1, 414 14 St., 2 story brick Louise A. Merrill Junior High School, E. Florida Ave. and S. Monroe St. Approx. $300,000. T. M. Buell & Co., 730 14 St., engrs.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

S. J. Groves & Sons Co., 500 Wesley Temple Bldg., Minneapolis, Minn. Low Bidder, $112,394, construction work at Wold-Chamberlain Field, b. conc. paving, concrete curb-gutter etc. MINNEAPOLIS, MINN. Minneapolis-St. Paul Metropolitan Airports Comn., R. Aldrich, exec. dir., 2429 University Ave., Minneapolis, Minn. Bids June 29. CD 6/22.

Peter N. Kruse, Spencer, Ia. Contract Awarded. $67,000. sewers, ELDORA, IA. City, Eldora, Ia. Bids June 25.

E. W. Daniel Plumbing & Heating Co., 1418 W. 9 St., Little Rock, Ark. Contract Awarded, $87,000, WW imprvs. LITTLE ROCK, ARK. Amboy-Oak Grove Water Imprvt. Dist., of Pulaski Co., Little Rock, Ark.

▲† **George Bennett Constr. Co.**, 1520 Central St., Kansas City, Kan. Low Bidder, $1,105,809, protective levees on Fairfax-Jersey Creek unit of Kansas City flood control project, raising dike, install fender pipe and collective pipe sys., stone protection and feeding. ***J. A. Tobin Constr. Co., 3700 Rainbow St., Kansas City 3, Kan., and L. G. Barlus & Sons, 1430 State St., Kansas City, Kan., $1,375,325, Jersey Creek sewer in Fairfax Dist., 1,900 ft. rein.-con. line for big sewer from Third and New Jersey east to Fairfax Levee, both Wyandotte Co., Kansas. U. S. Eng., Davidson Bldg., Kansas City 8, Mo. Awarded June 25. CD 5/31.

Brown Bros. Constr. Co., 2408 Steele Rd., Kansas City, Kan. Contract Awarded, $270,956, sewers in Westwood Dist., Main Sewer Dist. 1, designated as Lateral Dist. No. 51A, OLATHE, KAN. Comrs. Johnson Co., Court House, Olathe, Kan. Bids June 19, awarded June 21.

† **Strain & Brown, Inc.**, P. O. Box 1057, San Angelo, Tex. Contract Awarded. $763,763. con. aprons, runways and taxiways at Big Spring Air Force Base, BIG SPRING, TEX. U. S. Eng., 1127 Texas & Pacific Bldg., Fort Worth, Tex. Bids June 22, awarded June 25. CD 6/26, under LB.

† **Stovall Constr. Co.**, 6543 Forest Park Rd., Dallas, Tex. Low Bidder. $349,176, est. $377,991, rehabilitation of runways and taxiways at Reese Air Force Base, LUBBOCK, TEX., U. S. Eng., 1127 Texas and Pacific Bldg., Fort Worth, Tex. CD 4/17.

†**Kelly Constr. Co.**, 2215 Belknap Pl., San Antonio, Tex. Contract Awarded. $69,004. 131,000 sq. yd. base and streets at Brooks Air Force Base, SAN ANTONIO, TEX. U. S. Govt., c/o Contracting & Purch. Officer, Brooks Air Force Base, San Antonio, Tex. Awarded June 23.

Harwell & Harwell, Insurance Bldg., San Antonio, Tex. Low Bidder, $795,000. airport terminal, SAN ANTONIO, TEX. City, City Hall, Military Plaza, San Antonio, Tex. Bids June 26. CD 6/13.

† **Russ Mitchell, Inc.**, 5304 Old Spanish Trail, Houston, Tex. Contract Awarded, $999,093, est. $994,744, aprons, runways and taxiways at Connally Air Force Base, WACO, TEX. U. S. Eng., Texas & Pacific Bldg., Fort Worth, Tex., Bids June 12, awarded June 25. CD 6/20, under LB.

† **Rambo Constr. Co.**, 2826 Morton St., Fort Worth, Tex., Low Bidder, $103,917, est. $145,696, training aids bldg. at Connally Air Force Base, WACO, TEX. U. S. Eng., 1127 Texas & Pacific Bldg., Fort Worth, Tex., Bids June 26.

† **J. W. Bateson Constr. Co.**, 1102 Irwin-Keasler Bldg., Dallas, Tex., Low Bidder, $626,500, est. $950,000. technical training hangars, Sheppart Air Force Base, Inv. No. Eng 34-066-51-44, WICHITA FALLS, TEX. U. S. Eng., Box 61, Tulsa, Okla. Bids June 21. CD 6/13.

COLORADO—State Hy. Dpt., 518 State Office Bldg., Denver, Colo.

Peter Kiewit Sons Co., 1950 S. Colorado Blvd., Denver, Colo. Low Bidder, $136,470, plant mix; $132,320 road mix, est. $125,089, stabilization, oil processing 5.604 mi. State Hy. 2, starting at Utah-Colorado State Line exten. easterly Colo. Proj. SP 42-2-518, Moffat Co. Bids June 21. CD 6/14.

† **Western Paving Constr. Co.**, 5105 Washington St., Denver, Colo., Contract Awarded, $729,700, runways, taxiways extension and reinforcement Items 1, 2, 3, 12 and 13, DENVER, COLO., Dpt. Navy, Buckley Field, Naval Air Station, Denver, Colo. Bids May 29, awarded June 21.

BUILDINGS

LOW BIDS AND CONTRACTS

B. J. Engelen Constr. Co., Springfield, Minn., Contract Awarded, $613,080, SCHOOL, HECTOR, MINN., Bd. Educ., L. Rich, clk., Hector, Bids June 14. CD 6/27, under LB.

Naugle-Leck, Inc., 714 Bakers Bldg., Minneapolis, Minn. Low Bidder, $525,397, grade SCHOOL, HOPKINS, MINN. Bd. Educ., Dr. W. W. McQueen, clk., Hopkins, Minn. Bids June 26. CD 6/4.

Pioneer Power Sales, 1955 University Ave., St. Paul, Minn. Contract Awarded, $146,302, piping and electric equip., station wiring, etc. for POWER PLANT, MARSHALL, MINN. City, Water, Light, Power & Building Comn., H. N. Harmon, secy., Marshall, Minn. Bids June 19. CD 6/7.

▲ **Ninth Naval Dist., Great Lakes, Ill.** rejected bids June 7, construct, manage, finance 196 units under Title VIII of National Housing Act. Proj. No. N-15, military HOUSING project, OLATHE, KAN. L.B. $2,145,036. Will re-advertise. CD 6/13, under LB.

James T. Taylor Sons, First Natl. Bank Bldg., Fort Worth, Tex., Low Bidder, $376,978, est. $550,000. general constr. 1 story, brick, tile, Dunbar ELEMENTARY-JUNIOR HIGH SCHOOL, FORT WORTH, TEX. Fort Worth Public Schools, c/o Ed. P. Williams, bus. mgr., Fort Worth, Tex., Bids June 26. CD 6/6.

▲ **T. C. Bateson Constr. Co.**, 618 Irwin-Keasler Bldg., Dallas, Tex. Contract Awarded, $2,131,145, est. $2,007,160. 2 concrete WAREHOUSES at Quartermaster Depot on Hemphill St., FORT WORTH, TEX., U. S. Eng., 1127 Texas & Pacific Bldg., Fort Worth Tex., Bids June 21, awarded June 25. CD 6/26, under LB.

▲ **Hubbard Constr. Co.**, 1507 Delano St., Houston, Tex., Low Bidder, $2,615,000. 348 HOUSING units, 49 separate bldgs., of the Schrimpf Alley Public Housing, HOUSTON, TEX. Houston Housing Auth., c/o San Felipe Courts, Houston, Tex., Bids June 23. CD 6/1.

M. R. Nelson Co., Mercedes, Tex. Contract Awarded, $744,000, 100 brick veneer DWELLING units, Tex. 29-1 and 2, MERCEDES, TEX. Mercedes Housing Auth., Mercedes, Tex. Bids June 22, awarded June 26. CD 6/1.

M. R. Nelson Co., Mercedes, Tex., Contract Awarded, $544,000, 75 brick veneer, HOUSING units, concrete fdn., Tex 73-1, PHARR, TEX. Pharr Housing Auth., Pharr, Tex., Bids June 20. Awarded June 25. CD 6/26, under LB.

Ramey Constr. Co., Amarillo, Tex. Contract Awarded, $471,700, est. $450,000. 76 one story brick veneer DWELLINGS, Tex 61-2, SWEETWATER, TEX. Sweetwater Housing Auth., c/o chn., Sweetwater, Tex. Bids June 21. Awarded June 26. CD 6/28, under LB.

† **Elliott Co.**, Jeannette, Pa. Contract Awarded, $887,916, furnishing, installing two 18,950 kva. vertical-shaft GENERATORS, with spare parts for Alcova Power Plant, Kendrick Proj., Spec. DC-3557, WYOMING. Bureau Reclamation, Dpt. Interior, Bldg. 1A, Denver Federal Center, Denver, Colo. Bids May 15, awarded June 25. CD 5/24, under LB.

▲† **R. E. McKee**, P.O. Box 1706, Santa Fe, N. M. Contract Awarded, $4,113,000, est. $4,224,689. 4 single story concrete BUILDINGS with bsmts., 4 single story concrete buildings, 1 single story concrete bldg. and 3,000 ft. cov'd pavement, misc. imprvs., and utilities, Inv. 291-51-121, LOS ALAMOS, N. M., U. S. Atomic Energy Comn., Los Alamos, N. M. Bids June 25, awarded June 28. Black & Veatch, 4706 Broadway, Kansas City, Mo., archts. CD 5/7.

▲ **Campbell & Kay**, P. O. Box 8/26, Tyler, Tex., Low Bidder, $1,014,760, est. $983,165, 3 DUPLEX FAMILY QUARTERS, 4 SINGLE FAMILY QUARTERS, one 16-man DORMITORY, 1 COMMUNITY and ADMIN. BLDG., 1 SOLAR OBSERVATORY BLDG., 1 LABORATORY BLDG., 1 LABORATORY SHOP BLDG., SERVICE STATION BLDG., SERVICE BLDG., AUTO STORAGE, Eng-005-51-55, SACRAMENTO PEAK, N. M., U. S. Eng., P. O. Box 1538, Albuquerque, N. M. CD 6/4.

FAR WEST

BIDS ASKED—HEAVY CONSTRUCTION

Ore., Myrtle Creek—B.A. 7/20—City, City Hall, sewage treatment plant. Plans deposit $30. Cornell, Howland, Hayes & Merryfield, Corvallis, engrs.

BIDS ASKED—BUILDINGS

Calif., Torrance—SCHOOLS—B.A. 7/17—Torrance Unified School Dist., 2335 Plaza Del Amo, Madrona and Riviera Elementary Schools, $300,000. Plans deposit $150. Schreiber & Peterson, 23380 S. Atlantic Blvd., archts. CD 3/20/50.

Ore., Eugene—COLLEGE BUILDINGS—B.A. 7/23—State Bd. Higher Educ., University of Oregon, Eugene, 3 story concrete Old Oregon and Commerce Bldgs., University of Oregon. Plans deposit $50. Wick & Hilgers, Spalding Bldg., Portland, archts. CD 12/28/50.

Calif., San Jose—SHOPS, etc.—B.A. 7/24—State Div. Architecture, P. Wks. Bldg., Sacramento, shops and laboratory bldg. at San Jose State College. Plans deposit $25. CD 4/6.

SOON LETS CONTRACT—BUILDINGS

▲ **Calif., Inyokern**—HOUSING—B.A. 7/16—P. Wks. Office, Eleventh Naval Dist., San Diego, Calif., soon lets contract construct, manage and finance, 750-unit military HOUSING. Approx. $1,000,000. Plans deposit $200. Woodruff & Lippincott, 3275 Wilshire Blvd., Los Angeles, Calif., archts. CD 12/6/50.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

Peter Kiewit & Sons, Sheridan, Wyo. Low Bidder, $223,346, est. $216,198, constr., surf. 10¼ mi. Idaho Central Hy., Clark Co.; $564,001, est. $641,614, constr., surf. 8.7 mi. U. S. Hy. 93 Jerome Co.

Pickett & Nelson, Idaho Falls, Idaho, $94,588, est. $88,157, constr., surf. 7.4 mi. Pahsineroi Rd., Lemhi Co. Bids June 22. CD 6/14.

UTAH—State Road Comn., State Capitol, Salt Lake City.

Strong Co., Springville, Utah. Contract Awarded, $508,927, est. $528,129, plant mixed bit. roadway surf. 7.951 mi. between Beaver Canyon and Fremont Junction, FAP No. F1-99 (5), Beaver and Iron Counties. Bids June 26. CD 6/14.

▲† **Marshall, Haas & Royce**, Belmont, Calif. Low Bidder, $1,719,349, earthwork, canal lining, structures for Mohawk Canal, Station 1547 plus 91.63 to 2056 plus 74.12 and Tyson Protective dike outlet channel, Gila Proj., Spec. DC-3575, ARIZONA. Bureau Reclamation, Dpt. Interior, Yuma, Ariz. Bids June 21.

▲† **Vincent Constr. Co. and Harold Ashton Building Co.**, 2025 E. 22 St., Tucson, Ariz. Low Bidder. $1,097,891. Bulk storage and fuel system, Davis-Monthan Air Force Base, Eng. 04-353-51-98, TUCSON, ARIZ. U. S. Eng., 751 S. Figueroa St., Los Angeles, Calif. CD 5/21.

▲† **Lease & Leighland**, 1501 N. 35 St., Seattle 3, Wash. Contract Awarded, $3,837,750, est. 4,344,268. 18 frame BARRACKS, 2 mess-administration facilities at Larson Field, Inv. No. 51-7, MOSES LAKE, WASH. U. S. Eng., Bldg. 602, City-County Airport, Walla Walla, Wash. Bids June 1. CD 6/6, under LB.

CALIFORNIA—State Div. Hys., 120 S. Spring St., Los Angeles,

Cox Bros. Constr. Co., Box 36, Stanton, Calif., Low Bidder, $93,522, bit. 0.8 mi. between Dulzura and Campo; $737,345, graded roadbed 3.2 mi. to existing

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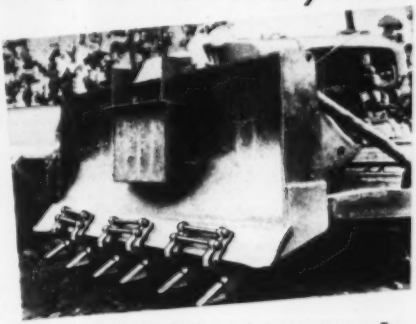

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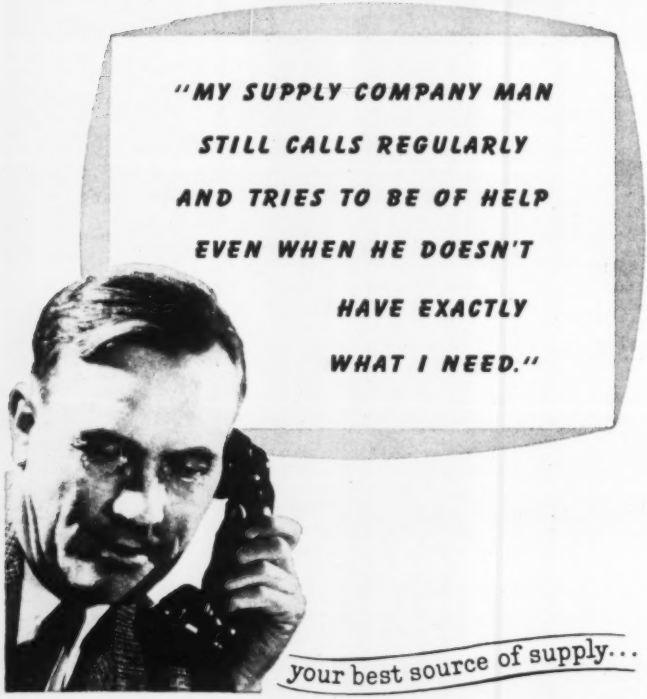

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hy. and 3 rein.-con. bridges, 1 rein.-con. box culverts between 0.7 mi. south of San Marcos Creek, both San Diego Co. Bids June 21. CD 5/31.

CALIFORNIA—State Div. Hys., 120 S. Spring St., Los Angeles, Calif.

Peterson & Baker, 2509 Gardner Place, Glendale, Calif. Contract Awarded, $913,870, 2 rein.-con. bridges, storm drains, on Hollywood Freeway at Bronson Ave. and Gower St., Los Angeles Co. Bids May 17. CD 5/25, under LB.

▲ CALIFORNIA—State Div. Hys., 120 S. Spring St., Los Angeles, Calif.

Winston Bros. Co., 1530 California St., Monrovia, Calif. Contract Awarded, $2,439,710, railroad underpass, separation structures, etc. on Santa Ana and First St., Orange Co. Bids June 1, awarded June 22. CD 6/7, under LB.

▲ CALIFORNIA—State Div. Hys., P. Wks. Bldg., Sacramento, Calif.

Charles L. Harney, Inc., 575 Berry St., San Francisco, Calif. Contract Awarded, $3,044,734, bridges and misc. roadwork on Bayshore Freeway between 18 and Bryant Sts., San Francisco Co. CD 6/21, under LB.

CALIFORNIA—State Div. Hys., P. Wks. Bldg., Sacramento, Calif.

Erickson, Phillips & Weisberg, 3341 Telegraph Ave., Oakland, Calif. Low Bidder, $179,612, rein.-con. slab bridge grading, approaches across Paradise Cut Overflow near Tracy, San Joaquin Co. Bids June 20. CD 5/31.

▲ CALIFORNIA—State Div. Hys., P. Wks. Bldg., Sacramento, Calif.

Hess Constr. Co., 1605 Lovell Ave., West Arcadia, Calif. Low Bidder, $761,903, grading, surf. 4.6 mi. rein.-con. bridge between 4.5 mi. NW of Isabella and Isabella Dam Site, Kern Co.

Piombo Constr. Co., 1571 Turk St., San Francisco, Calif. $1,212,424, walls, riprap, road constr. 17.7 mi. between Briceburg and Yosemite National Park Boundary Mariposa Co.

R. P. Shea Co., P. O. Box 218, Indio, Calif. Low Bidder, $204,774, grading, surf. 2.7 mi. north of Sonora Junction and Antelope Valley, Mono Co. Bids June 20. CD 5/31.

† Monarch Forge & Machine Works, 2130 N.W. York St., Portland, Ore. Low Bidder, $82,121, four radial-gate hoists for spillway at Cachuma Dam, Cachuma Proj., Spec.DS-3437, CALIFORNIA. Bureau Reclamation, Dpt. Interior, Bldg. 1-A, Denver Federal Center, Denver, Colo. Bids June 21. CD 6/4.

† Hutchinson Co., 7360 Schmidt Lane, El Cerrito, Calif. Low Bidder, $70,705, emergency bank protection at 5 sites San Joaquin Delta, Spec. 1556, CALIFORNIA. U. S. Eng., Wright Bldg., Sacramento, Calif. Bids June 20.

Ets-Nokin & Galvan, Inc., Wilmington, Calif. Low Bidder, $105,633, highway lighting and signs on Harbor Freeway between Temple and Third Sts. and on Hollywood-Santa Ana Freeways, Los Angeles Co., CALIFORNIA. State Div. Hys., P. Wks. Bldg., Sacramento, Calif.

Fischback & Moore, 646 N. Beachwood Dr., Los Angeles, Calif. Low Bidder, $68,212, Highway interchange lighting sign systems on Los Angeles River Freeway, Long Beach, Los Angeles Co., CALIFORNIA. State Div. Hys., P. Wks. Bldg., Sacramento, Calif. Bids June 21. CD 5/31.

A. B. C. Constr. Co., 14346 S. Lakewood St., Paramount, Calif. Contract Awarded, $75,126, Sewage force mains and appurtenant work, BUENA PARK, CALIF. Buena Park Sanitary Dist., 7695 9 St., Buena Park, Calif. Bids June 6, awarded June 20. CD 5/29.

† Stolte, Inc., 8451 San Leandro St., Oakland, Calif. Low Bidder, $247,577, Rehabilitation alterations to bldgs. at Naval Auxiliary Air Station, Spec. 29139, CROWS LANDING, CALIF. Twelfth Naval Dist., Federal Office Bldg., San Francisco, Calif. Bids June 19. CD 6/6.

† Ball & Simpson, 685 Delaware St., Berkeley, Calif. Low Bidder, $1,031,000, New runway extens., Spec. 29137, NOY 27174, CROWS LANDING, CALIF. Twelfth Naval Dist., Federal Office Bldg., San Francisco, Calif. CD 1/18.

Pittsburgh-Des Moines Steel Co., Santa Clara, Calif. Low Bidder, $52,985, Steel water tower, 150,000 gal. tank, State College, FRESNO, CALIF. State Div. Architecture, P. Wks. Bldg., Sacramento, Calif. Bids June 19. CD 6/31.

A. H. Famularo, 2740 W. First St., Santa Ana, Calif. Low Bidder, $104,447, South Spadara Road storm drain, FULLERTON, CALIF. City Council, 237 W. Commonwealth St., Fullerton, Calif. Bids June 19. CD 5/29.

† Action Electric Co., 572 Bosworth St., San Francisco, Calif. Low Bidder, $184,472, Navigation aids for control tower, etc., ENG 04-203-51-1807, HAMILTON FIELD, CALIF. U. S. Eng., 180 New Montgomery St., San Francisco, Calif. Bids June 19.

† United Constr. Co., Box 1887, Long Beach, Calif., Low Bidder, $780,715, subsidence remedial measure, third increment Spec. 29687 LONG BEACH, CALIF., U. S. Naval Station, Long Beach, Calif., Bids June 26. CD 6/13.

† J. Henry Harris, 2657 9 St., Berkeley, Calif. Low Bidder, $230,547, Rehabilitate roads and railroad trackage at Naval Ammunition Depot, Spec. 29144, MARE ISLAND, CALIF. Twelfth Naval Dist., Federal Office Bldg., San Francisco, Calif. Bids June 19. CD 6/7.

† Abbett Electric Corp., 472 Tehama St., San Francisco, Calif. Low Bidder, $336,901, Rehabilitation electric services at Naval Ammunition Depot, Spec. 29143, MARE ISLAND, CALIF. Twelfth Naval Dist., Federal Office Bldg., San Francisco, Calif. Bids June 19. CD 6/7.

M. Malfitano & Sons, Inc., P. O. Box 750, Pittsburg, Calif. Contract Awarded. $98,133, 5,700 lin. ft. grading, etc. County Road D-5 (Kirker Pass Rd.) between Clayton and Pittsburg, MARTINEZ, CALIF. Contra Costa Co., Hall of Records, Martinez, Calif. Bids June 18, awarded June 19. CD 6/7.

† **Howard J. White, Inc.**, 44 Encina Ave., Palo Alto, Calif. Low Bidder, $846,409. Barracks bldg. addn., Naval Air Station, NOY 27953, Spec. 29626, MOFFETT FIELD, CALIF. Twelfth Naval Dist., Federal Office Bldg., San Francisco, Calif. Bids June 21. CD 6/7.

† **Dinwiddie Constr. Co., Inc.**, Crocker Bldg., San Francisco, Calif. Low Bidder, $369,490. Hangars 2 and 3 alterations, Spec. 29627, MOFFETT FIELD, CALIF. Twelfth Naval Dist., Federal Office Bldg., San Francisco, Calif. Bids June 19.

▲† **Guy F. Atkinson Co.**, 10 West Orange Ave., South San Francisco, Calif. Low Bidder, $1,512,830. Repair garage, supply warehouse at Naval Air Station, Spec. 29630, MOFFETT FIELD, CALIF. Twelfth Naval Dist., Federal Office Bldg., San Francisco, Calif. Bids June 21. CD 6/7.

▲† **Guy F. Atkinson Co.**, 10 W. Orange Ave., South San Francisco, Calif. Contract Awarded. $2,044,200. Aircraft loading addns., and parking areas, Spec. 29135, MOFFETT FIELD, CALIF. Twelfth Naval Dist., Federal Office Bldg., San Francisco, Calif. Bids June 5, awarded June 20. CD 6/12, under LB.

▲† **Guy F. Atkinson Co.**, 10 West Orange Ave., South San Francisco, Calif. Low Bidder, $1,241,188. Exten. runways, taxiways, etc., Naval Air Station, Spec. 29629, MOFFETT FIELD, CALIF. Twelfth Naval Dist., Federal Office Bldg., San Francisco, Calif. Bids June 19. CD 6/11.

Ted Gregory, 112 Wellington Ave., Pasadena, Calif. Low Bidder, $86,650. Sewage treatment plant, MORGAN HILL, CALIF. City, City Hall, Morgan Hill, Calif. Bids June 20. CD 6/11.

▲† **Alliance Constr. Co.**, 308 Monterey Rd., South Pasadena, Calif. Contract Awarded, $2,059,355, est. $2,300,000, enlisted mens barracks and facilities at Edwards Air Force Base, Eng 04-253-51-94, MUROC, CALIF. U. S. Eng., 751 S. Figueroa St., Los Angeles, Calif. Bids June 21. CD 6/29.

† **Edward R. Siple**, 2545 San Fernando Rd., Los Angeles, Calif. Low Bidder, $142,658. Garage for rocket experimental station at Edwards Air Force Base, ENG 04-353-51-110, MUROC, CALIF. U. S. Eng., 751 S. Figueroa St., Los Angeles, Calif. Bids June 25.

† **J. Henry Harris**, 2657 9 St., Berkeley, Calif. Low Bidder, $59,800. Repair, extend roadways and parking areas at Naval Hospital, Sec. 29148, OAKLAND, CALIF. Twelfth Naval Dist., Federal Office Bldg., San Francisco, Calif. Bids June 20. CD 6/7.

▲† **McDonald Brothers**, 6014 West Adams Blvd., Los Angeles, Calif. Low Bidder, $1,250,568 addnl. buildings, Eng 04-353-51-105***Julio Tomei Constr. Co., 4737 Orion Ave., Los Angeles, Calif., $121,797, alert apron, Eng 04-353-51-106***C. D. Draucker, Inc., 2707 San Fernando Rd., Los Angeles, Calif., $214,458, runway and taxiway lighting, Eng 04-353-51-104 all Oxard Air Force Base, OXNARD, CALIF. U. S. Eng., 751 S. Figueroa St., Los Angeles, Calif. Bids June 28. CD 6/22

▲† **C. Norman Peterson**, 2832 St., Berkeley, Calif. Low Bidder, $182,656. Imprv. electric and fire protection facilities at U. S. Naval Magazine, Spec. 29155, PORT CHICAGO, CALIF. Twelfth Naval Dist., Federal Office Bldg., San Francisco, Calif. Bids June 19.

† **Ben C. Gerwick, Inc.**, 112 Market St., San Francisco, Calif. Contract Awarded. $621,908. Rehabilitation barricaded sidings at U. S. Naval Magazine, Spec. 29649, PORT CHICAGO, CALIF. Twelfth Naval Dist., Federal Office Bldg., San Francisco, Calif. Bids June 14, awarded June 19. CD 6/21, under LB.

† **Joseph McFadden & Son**, P. O. Box 1050, Palo Alto, Calif. Low Bidder, $74,608. Rehabilitating roads, etc. at East Garrison, ENG-04-203-51-1040, FORT ORD, CALIF. U. S. Eng., 180 New Montgomery St., San Francisco, Calif. Bids June 19.

† **R. A. Wattson Co.**, 5528 Vineland Ave., Los Angeles, Calif. Contract Awarded. $374,125. Storm drain in Bellevue Ave., Spec. 26449, SAN DIEGO, CALIF. Dpt. Navy, Eleventh Naval Dist., San Diego, Calif.

T. E. Connolly, Inc., Sheldon Bldg., San Francisco, Calif. Low Bidder, $226,450. Access road from Early Intake on south fork of Tuolumne River to Camp Mather, SAN FRANCISCO, CALIF. Public Utilities Comn., City Hall, San Francisco, Calif. Bids June 19. CD 6/7.

† **Monson Bros.**, 475 6 St., San Francisco, Calif. Low Bidder, $935,528. Drydocks 2 and 3 repairs at San Francisco Naval Shipyard, Spec. 29637, SAN FRANCISCO, CALIF. Twelfth Naval Dist., Federal Office Bldg., San Francisco, Calif. Bids June 21. CD 6/8.

L. C. Smith, 1 and Railroad Sts., San Mateo, Calif. Low Bidder, $67,814, San Miguel Ave., Curtiss St., and E. 38 Ave. exten.; paving 40 Ave. exten., SAN MATEO, CALIF. City, City Hall, San Mateo, Calif.

San Joaquin Co., Court House, Stockton, Calif. rejected bids June 11, concrete ferry ramps Venice Island Ferry and Correia Ferry, STOCKTON, CALIF. L.B. $62,067. CD 6/19, under LB.

† **Kenworthy & Patterson**, 1505 W. Walnut St., Stockton, Calif. Low Bidder, $57,634, levee and appurtenances at Calif. Vocational Institute, San Joaquin Co., TRACY, CALIF. State Div. Architecture 3. P. Wks. Bldg., Sacramento, Calif. Bids June 19. CD 6/5.

▲† **MacDonald, Young & Nelson**, 351 California St., San Francisco, Calif. Low Bidder, $1,515,861, expansion of station HOSPITAL, Travis Air Force Base, Spec. 1546, TRAVIS AIR FORCE BASE, CALIF. U. S. Eng., Wright Bldg., Sacramento, Calif. Bids June 25.

▲† **Beyer & Abrahamson**, 319 Ninth & Hill Bldg., Los Angeles, Calif. Low Bidder, $1,023,994, hangar at Van Nuys National Guard Field, NG-51-30, VAN NUYS, CALIF. Purch. & Contg. Office, U. S. Property & Disbursing Office, San Luis Obispo, Calif.

BUILDINGS

LOW BIDS AND CONTRACTS

▲† **Sound Constr. & Eng. Co.**, 1300 Alaska St., Seattle, Wash. Contract Awarded, $3,744,213, RADIOCHEMISTRY bldg. at Hanford Works, RICHLAND, WASH. Atomic Energy Comn., 1901 Constitution Ave. N.W., Wash., D. C. Bids May 29. CD 6/6, under LB.

Harvey Getman, 10706 N. E. Beach St., Portland, Ore., Contract Awarded. $85,000. 83x200 ft. rein.-con. MACHINE SHOP, PORTLAND, ORE., Milwaukie Machinery Co., 4010 S. W. Macadam St., Portland, Ore. Pierson & Tidball, Concord Bldg., Portland, Ore. engrs.

† **Westinghouse Electric Corp.**, Gas and Electric Bldg., Denver, Colo. Contract Awarded, $559,751, 6 mobile unit SUB-STATIONS with spare parts for emergency supply Central Valley Proj., Colorado-Big Thompson and Missouri River Basin Proj., Spec. DS-3291, CALIFORNIA, COLORADO and WYOMING Bureau Reclamation Dpt. Interior, Bldg. 1-A, Denver Federal Center, Denver, Colo. Bids Apr. 5, awarded June 21. CD 4/12, under LB.

▲ **Grandview Constr. Co.**, 470 S. Beverly Dr., Beverly Hills, Calif. Owner Builds. $1,710,000, 217 frame, stucco DWELLINGS, BAKERSFIELD, CALIF. H. J. Bissner, 3733 E. Colorado St., Pasadena, Calif., archts.

Buttress & McClelland, 1900 Beverly Blvd., Los Angeles, Calif. Contract Awarded, $150,000, motor freight DEPOT and GARAGE bldg., EAST LOS ANGELES, CALIF. Braswell Motor Freight Lines, 1005 Hooper Ave., Los Angeles, Calif. McClellan, MacDonald, Markwith, 1900 Beverly Blvd., Los Angeles, Calif., archts.

† **F. V. Hampshire**, P. O. Box 448, Salinas, Calif., Low Bidder, $359,254, rehabilitating 76 BUILDINGS at East Garrison, ENG 04-203-51-1038, FORT ORD, CALIF. U. S. Eng., 180 New Montgomery St., San Francisco, Calif. Bids June 19.

▲ **Moore & Roberts**, 693 Mission St., San Francisco, and **Elmer J. Freethy**, 1432 Kearny St., El Cerrito, Calif. Low Bidder, $1,297,000, 176-unit HOUSING, Project CAL 11-5, PITTSBURG, CALIF. Contra Costa Co. Housing Auth., 700 D. St., Martinez, Calif. Bids June 21. CD 6/12.

▲ **Nomellini Constr. Co.**, Box 1177, Stockton, Calif., Low Bidder, $1,997,507, general contract; **B. A. Newman**, 320 North H. St., Fresno, $462,556, mechanical work, for HOSPITAL ADMINISTRATION bldg., etc., Institution of Epileptics, PORTERVILLE, CALIF. State Div. Architecture, P. Wks. Bldg., Sacramento, Calif. Bids June 19. CD 5/22.

▲ **Central State Constr. Co.**, 593 Market St., San Francisco, Calif. Low Bidder, $1,144,444, Mercy HOSPITAL, REDDING, CALIF. Sisters of Mercy, Diocese of Sacramento, Roman Catholic Bishop, 1119 K St., Sacramento, Calif. Bids June 29. CD 6/4.

▲ **Allison Hoier Co.**, Box 184, South Ana, Calif. Low Bidder, $1,899,440, general contract; **Johnston & Washer**, 1615 S. Santee St., Los Angeles, Calif. $589,900, mechanical work, State SCHOOL for Deaf, RIVERSIDE, CALIF. State Div. Architecture, P. Wks. Bldg., Sacramento, Calif. Bids June 19. CD 5/14.

Wm. Horstmeyer, 23 Mars St., San Francisco, Calif., Contract Awarded. $512,708, Belle Air SCHOOL, SAN BRUNO, CALIF. San Bruno Elementary School Dist., 875 Angus Ave., San Bruno, Calif. Bids June 6, awarded June 22. CD 6/15, under LB.

Nielsen & Nielsen, 1185 Coolidge Ave., San Jose, Calif., Contract Awarded. $698,829, MUSIC BLDG. at San Jose State College, SAN JOSE, CALIF. Bids June 5, awarded June 22. CD 6/12.

▲ **W. E. Robertson Co.**, 1415 West Jefferson Blvd., Los Angeles, Calif. Contract Awarded, $2,839,333, 400 unit HOUSING, STOCKTON, CALIF. San Joaquin Co. Housing Auth., Occidental Ave., Stockton, Calif. Bids June 11, awarded June 22. CD 6/19, under LB.

City, City Hall, Stockton, Calif., received no bids June 19, Stockton Emergency HOSPITAL addns., alterations, STOCKTON, CALIF.

Kyle Steel Constr. Co., 5200 Alcoa Ave., Vernon, Calif., Contract Awarded, $169,000, 80x475 ft. steel frame, corrugated iron SHOP, VERNON, CALIF. U. S. Spring & Bumper Co., 48-20 S. Boyle Ave., Vernon, Calif.

CANADA

BIDS ASKED—HEAVY CONSTRUCTION

Newfoundland, Twillingate—WHARF—B.A. 7/18—Secy., Dpt. P. Wks., Hunter Bldg., Ottawa, Ont., wharf reconstruction, Approx. $140,000. Plans deposit $25. R. Blais, c/o owner, engr. CD 3/16/50.

Ont., Toronto—B.A. 7/31—Mayor and Bd. Control, City Hall, supply and installation pumping equipment at high level pumping station. CD 2/2/50.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

Robinson Cdntg. Co., Ltd., 61 Melvin St., Hamilton, Ont. Low Bidder, $453,386, 2,705 ft. tunnel, 5'x6'6" ft. and 1,370 ft. 5'1x5'5 ft., Mountain Trunk Sewer, final section, HAMILTON, ONT. City, City Hall, Hamilton, Ont. CD 4/25/50.

BUILDINGS

LOW BIDS AND CONTRACTS

A. Downie, 20 Dominion Ave., Kapuskasing, Ont. Contract Awarded. $400,000, 13 DWELLINGS, mill cafeteria, school and community hall, KAPUSKASING, ONT. Spruce Falls Power & Paper Co. Ltd., 330 University Ave., Toronto, Ont.

C. Carpenter & Co. Ltd., 5139 Decarie Blvd., Montreal, Que. Contract Awarded. 36 APARTMENTS at Manor Park, OTTAWA, ONT. Manor Gardens, Inc., 69 Spark St., Ottawa, Ont. CD 7/14/49.

McLarty Bros. & Brodie, 280 Wilson St., Sault Ste. Marie, Ont. Contract Awarded. $364,997, brick, steel HIGH SCHOOL addn., SAULT STE. MARIE, ONT. Sault Ste. Marie Bd. Educ., Central School, Sault Ste. Marie, Ont. Bids June 22, awarded June 25. CD 6/4.

PROPOSED PROJECTS

WATER SUPPLY

O., Columbus—City, construct Hoover Dam and Reservoir, in Franklin and Delaware Counties. $10,000,000. Burgess & Niple, 584 E. Broad St., consult. engrs. CD 3/23/50.

▲ **O., Toledo**—City, Arnold V. Finch, mgr., City Hall, bond election Oct. 2, city water service sys. exten. $7,500,000. George V. Van Dorp, city water comr. CD 11/1/49.

Tex., McAllen—City, addnl. expansion water sys. $200,000. Sigler, Clark & Winston, Weslaco, consult. engrs.

N. S., Louisburg—Town G. Leslie, mayor, Louisburg, water system. $300,000.

Que., Pointe aux Trembles (Postal Dist. Montreal)—Municipality, water mains and pumping stations, $400,000. J. N. Langelier, 10 St. James St. W., Montreal, engr.

SEWERS, WASTE DISPOSAL

Ark., Russellville—City, voted bonds, sewerage sys., $450,000. Marion L. Crist & Assocs., Union Life Bldg., Little Rock, consult. engrs.

Colo., Ault—Town, City Hall, sewage disposal sys. and sewer lines, $100,000. Ripple & Hower, 426 Cooper Bldg., Denver, consult. engrs.

Ill., Pekin—City, City Hall, sanitary sewers, $500,000. Ben F. Smith, 800 Washington St., consult. engr. CD 11/30/50.

Ind., Fort Wayne—Bd. P. Wks., City Hall, modernize incinerator plant on Dwenger Ave., $300,000; if sludge is to be burned an additional $400,000 required. Moore & Owen, 22nd N. Meridian St., Indianapolis, Ind., consult. engrs. CD 7/24/46.

Ia., Garnavillo—City, sewers, pumping stations, sewage plant, $100,000. Bartels & McMahan, 212 Stampher Bldg., Dubuque, Ia., consult. engrs. CD 8/3/50.

N. Y., Highland Falls—Village, sanitary sewerage sys. exten. $100,000.

O., Miamisburg—City, bond election Nov. 6, sewage disposal plant. $450,000.

R. I., Newport—City, City Hall, Contr. B, sewerage ejector station, underground ejector station; Contr. C, sewers, drain, force mains, appurtenant work, pipe fitting, manholes 3 junction chambers, etc. $200,000. Metcalf & Eddy, 1300 Statler Bldg., Boston, Mass., consult. engrs.

Tex., Texas City—City, $500,000 bond election July 21, sewage disposal plant. $850,000. CD 12/14.

BRIDGES

Ia., Dubuque—City of Dubuque, Chicago Great Western R.R. Co., H. W. Johnson, ch. engr., 309 W. Jackson St., Chicago, Ill., and Chicago, Milwaukee St. Paul & Pacific R.R. Co., W. G. Powrie, ch. engr., Chicago, Ill., overpass on 14 St. over tracks of above two railroads. $500,000.

▲ **Kan., Leavenworth**—City, bridge across Missouri River. $2,000,000. Howard-Needles-Tammen & Bergendoff, 921 Walnut St., Kansas City, Mo., consult. engrs.

▲ **Pennsylvania**—State Hy. Dpt., 506 North Office Bldg., Harrisburg.

Beaver Co.—bridge over Ohio River at Shippensport. $5,000,000. E. L. Schmidt, c/o owner, ch. engr.

STREETS AND ROADS

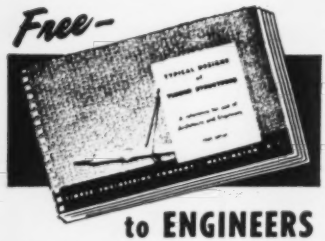
Ark., Paragould—City, voted bonds, street paving, $150,000. CD 6/4.

Calif., Corte Madera—City, voted bonds repairing Tamalpais Dr., Redwood Ave., Manzanita Dr. and First St. $125,000. CD 5/21.

Ill., Belvidere—Boone Co., Court House, resurfacing 71 mi. state and roads in 5 years. $475,000.

Neb., Lincoln—City, City Hall, pave 22 blocks residential streets in Havelock Dist. $100,000. D. L. Erickson, city engr.

▲ **Ohio**—State Hy. Dpt., Columbus,
relocate U.S. Route 25 and make it a divided four-lane highway from Vandalia, to Lima, approx. 60 mi.; by-passing Tipp City, Troup, Piqua, Sidney, Wapa-



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koneta and Lima. $22,725,000. Angus L. Purdy, Division 7, Ohio Hy. Dpt., Sidney, owner's engr. CD 11/24/48.

Wash., Seattle—City, County-City Bldg., Seattle, Zone 4, paving 43 Ave. N.E. et al, $159,813; alleys in Block 4, Loyal addn. et al, $29,721; in Block 1, Wilcox addn. et al, $21,074. R. W. Finke, city engr.

Wyo., Evanston—City, will not pave 90 blocks of streets and repairing 15 block streets $100,000. Project abandoned. CD 5/24.

AIRPORTS

▲† Ill., Rantoul—STRUCTURES—Dpt. Air Force, Pentagon Bldg., Wash., D. C., misc. structures, $11,759,000. CD 3-28.

▲† Ill., Scott Air Force Base—STRUCTURES—Dpt. Air Force, Pentagon Bldg., Wash., D. C., misc. structures, $14,071,000.

▲† Ky., Fort Campbell—AIR FIELD—Dpt. Army, The Pentagon, Wash., D. C., air field pavement, fuel storage and dispensing facilities, field lighting, barracks, shops, family housing and administrative bldg. for Fort Campbell Air Force Base. $3,026,000.

▲† Mich., Gross Ile—AIR STATION ADDNS.—Dpt. Navy, Yards & Docks Annex, Arlington, Va., Naval Air Station addns. $4,796,000.

▲† Mich., Oscoda Air Force Base—EXPANSION—Dpt. Air Force, Pentagon Bldg., Wash., 25, D. C., air force base expansion, $1,633,000. CD 3-28.

Neb., Scottsbluff—ADMINISTRATIVE BLDG.—City administrative bldg. at municipal airport. $100,000. C. C. Neville, city engr. CD 3-30-50.

▲† Nev., Reno—AIR BASE—U. S. Eng., 4735 E. Marginal Way, Seattle 4, Wash., repairs and alterations to Stead Air Force Base. $2,109,000.

▲† Okla., Altus—AIR BASE—U. S. Eng., Box 61, Tulsa, re-activation Altus Air Base and facilities. $17,842,000.

▲† Okla., Ardmore—AIR BASE—U. S. Eng., Box 61, Tulsa, re-activation Ardmore Air Base and its facilities. $14,188,000.

▲† Okla., Camp Gruber—BUILDINGS, etc.—U. S. Eng., Box 61, Tulsa, re-activation of Camp Gruber buildings and facilities. $9,913,000.

† Okla., Enid—RUNWAYS, etc.—U. S. Eng., Box 61, Tulsa, Zone 2, subseal runways, taxiways apron and streets, Vance Air Force Base. $232,362.

† Tex., Ellington Field Air Force Base—AIR BASE—U. S. Eng., 606 Santa Fe Bldg., Galveston, water imprvs. line extens. $40,000; roads, $60,000; sanitary sewers, $65,000; gas sys. imprvs., and extens., $60,000; housing, $300,000; airfield paving, $100,000; outside lighting, $60,000; storage or warehousing, $100,000.

▲† Tex., Harlingen—AIR FIELD—U. S. Eng., 606 Santa Fe Bldg., Galveston, airfield pavement, taxiways, runways, etc. $2,500,000; troop housing, $6,000,000; dispensary, medical, $600,000; fuel storage, $500,000; communications facilities, $515,000; outside area lighting system, $175,000; road and street imprvs., surf. ..., $100,000; WW extens., imprvs., rehabilitation ..., $60,000; revamping, extens., sanitary sewerage sys., $75,000; ..., storage and warehousing, $1,500,000; administration and support facilities, $1,750,000; misc. construction, $962,000; repair shops, $1,000,000, for Harlingen Navigation Training Base. CD 3-16.

▲† Tex., Kelly Air Force Base—AIRCRAFT MAINTENANCE, etc.—U. S. Eng., 606 Santa Fe Bldg., Galveston, aircraft maintenance, incl. shops, $14,000,000; troop barracks or housing, $10,244,000; medical bldgs., $750,000; storage or warehousing, $4,000,000; administration bldg. and supporting facilities, $1,500,000; mess halls, $2,500,000; water sys. imprvs. and extens., $100,000; sanitary sewers, $80,000; outside military area electric lighting, $100,000; streets and roads, $150,000; natural gas sys. imprvs. and extens., $75,000; gasoline storage and dispensing sys. for engine test bldgs., Spec. No. MCAI-51-12, 107x151 ft. reinforced frame, masonry fuel accessories test facilities, MCAI 51-8, $200,000; four 96x171 ft. reinforced engine test bldgs., propeller type, Spec. No. MCAI 51-15, $350,000; 167x169 ft., 36 ft. high mono. concrete, masonry high horsepower conventional reciprocating engine test facilities, MCAI 51-16, Approx. $200,000. CD 1-9.

▲† Tex., Lackland Air Base (Br. San Antonio)—MILITARY BUILDINGS—U. S. Eng., 606 Santa Fe Bldg., Galveston, modernization and repairing certain military buildings. $1,000,000. CD 5/2.

▲† Tex., Laredo—AIR FIELD—U. S. Eng., 606 Santa Fe Bldg., Galveston, airfield pavement, incl. taxiways, $500,000; water distr. sys., facilities, $70,000; road runways, etc. $1,250,000; communications facilities and street constr. paving, $100,000; sanitary sewers, $80,000; outside lighting system, $100,000; misc. constr. $756,000; storage or warehousing, $750,000; repair shops, $600,000; housing, $3,500,000; operational and training bldgs., $2,000,000, for Laredo Air Force Base Jet Training Center. CD 2/14.

† Tex., San Angelo—AIR BASE—U. S. Eng., 606 Santa Fe Bldg., Galveston, water sys. expansion, $200,000; streets and roads constr., paving and reconstruction, $175,000; domestic gas sys. rehabilitation and extens., $75,000; outside electric lighting sys. rehabilitation and exten., $90,000; storm sewers, $100,000; sanitary sewers, $125,000, for Goodfellow Air Force Base.

▲† Tex., San Antonio—LABORATORY, etc.—U. S. Govt., c/o Brooks Field Medical Center, San Antonio, laboratory, $350,000; allied medical bldgs., $1,024,000; water sys., $50,000; sewers, $75,000; drainage and road imprvs., $80,000.

▲† Tex., Victoria—AIR BASE—U. S. Eng., 606 Santa Fe Bldg., Galveston, fuel storage, $650,000; sanitary sewers, $85,000; water distr. lines, facilities, $80,000; operations and administration bldgs., $1,500,000; repair shops, $700,000; aircraft maintenance and training bldgs., $1,750,000; airfield pavement, runways, taxiways, etc., $3,000,000; outside lighting sys., $110,000; troop housing, $3,000,000; roads and streets, $90,000; misc. constr. $2,063,000; general storage or warehousing, $700,000, Victoria Fighter Bomber Base. CD 1/30.

▲† Vt., Burlington—AIR BASE—Dpt. Defense, The Pentagon, Wash. 25, D. C., expand present facilities of Burlington Air Force Base, incl. main runway extens. and other airfield pavement work, navigational aids, hazard removal, storage facilities, hangars, control tower, buildings, dispensary, barracks, utilities. $2,481,000.

▲† Wis., Madison—AIR BASE IMPRVS.—U. S. Eng., 428 Federal Bldg., Milwaukee, Zone 1, addns., modifications at Truax Air Force Base. $4,035,000. CD 3/27.

LATIN AMERICA

▲ Mexico, Guaymas—Petroleos Mexicanos, Juarez 104, Mexico City, plans oil refinery. $5,000,000.

Mexico, La Paz—Luis Rodriguez Montijo, Alvarado Obregon, sin numero, La Paz, plans tourist resort, 26-room hotel, aviation landing field, etc. $500,000.

Mexico, Mexico City—Hojalata y Lamina, S.A., Cipres, 230, Mexico City, plans steel sheet bar factory. $500,000.

Mexico, Tacubaya—Fierro Esmaltado, S.A., Felipe Angeles, 12, Col. Bellavista, plans enameled metallic sanitary furniture factory. $400,000.

Mexico, Tlalnepantla—Acero Estructural, S.A., Apartado Postal 29, Tlalnepantla, State of Mexico, plans steel tubes factory. $500,000.

PUBLIC BUILDINGS

Colo., Greeley—SCHOOLS—Bd. Educ., School Dist. 6, Greeley, voted bonds, new Junior High; new grade school, addns., alterations to existing schools and new recreation facilities, $980,000. Atchison & Kloverstrom, 1254 Monaco Parkway, Denver, Colo., consult. engrs. and archts. CD 5/29.

Conn., North Haven—SCHOOL—Town Bd. Educ., plans by Carl J. Malmfeldt Assoc., 36 Pearl St., Hartford, brick, steel, concrete senior High School and present school addn., Anthony Ave. $900,000. CD 2/11/49.

Conn., Shelton—HOUSING—City Housing Auth., 40 White St., plans by Seb J. Passanesi, 164 Court St., Middletown, Conn. 14-1, 75-unit HOUSING. $500,000.

Conn., West Hartford—SCHOOL—Town, Supt. Schools, Memorial Dr., plans by Ebbets Frid & Prentice, 862 Asylum St., Hartford, Conn., brick, steel, concrete elementary school, King Phillip and Mohawk Dr. $600,000.

▲ Fla., Pahokee—HOUSING—Pahokee Housing Auth., Pahokee, 228 housing units, Approx. $1,500,000.

† Ill., Fort Sheridan—STRUCTURES—Dpt. Army, Pentagon Bldg., Wash., 25, D. C., added structures, $554,500.

▲ Ill., Great Lakes—HOSPITAL, etc.—Dpt. Navy, Yards & Ducks Annex, Arlington, Va., Naval Hospital, $3,900,000; electronics supply office, $4,053,100; naval training center, $6,295,000; naval supply depot, $3,750,000. CD 1-12-50.

† Ind., Camp Atterbury—STRUCTURES—Dpt. Army, Pentagon Bldg., Wash., 25, D. C., misc. structures, $885,000.

▲† Ind., Terre Haute—FACILITIES—Dpt. Army, Pentagon Bldg., Wash. 25, D. C., misc. structure, Jeffersonville Quarter Master Depot. $942,000.

† Ind., Jeffersonville—REPAIR SHOPS—Dpt. Army Pentagon Bldg., Wash., D. C., 36,000 sq. ft. parachute repair shop and box and crate shop for Jeffersonville Quartermaster Depot. $942,000.

Ind., South Whitley—POWER PLANT—Town Bd., South Whitley, imprv. municipal light and power plant, increasing generating capacity. $210,000. CD 12/18/47.

▲† Ind., Terre Haute—FACILITIES—Dpt. Army, Pentagon Bldg., Wash., D. C., misc. facilities, at Terre Haute Ordnance Depot, $1,982,200.

▲† Ky., Fort Campbell—BUILDINGS—Dpt. Army, The Pentagon, Wash., D. C., permanent buildings and installations to include barracks, hospital, administrative buildings, chapels, warehouses, post exchanges, mess halls and firing ranges, $34,688,000.

▲ † Ky., Fort Knox—BUILDINGS—Dpt. Army, The Pentagon, Wash., D. C., permanent bldgs. and i *tallations incl. barracks, 500 bed hospital, adminis ive bldg., chapels, warehouses, post exchanges, mess *ls, firing ranges, $40,746,100.

Ky., Lexington—SCHOOL—Bd. Educ., Fayette Co., Lexington, plans by Brock & Johnson, 144 Barr St., school, Bell Line Rd. $500,000.

† Ky., Louisville—ADMINISTRATION—Dpt. Army, The Pentagon, Wash., D. C., permanent administration bldg. and headquarters for Louisville Medical Depot. $859,500.

▲ Ky., Louisville—NATURAL SCIENCE—University of Louisville, 2301 S. 3 St., plans by W. S. Arrasmith, Lincoln Bank Bldg., brick, stone natural science bldg. $1,000,000. Southern Engineers, 419 W. Main St., consult. engrs. CD 4/17.

▲ La., St. Martinville—SCHOOL—St. Martin Parish School Bd., St. Martinville, voted bonds, school imprvs. $1,200,000. CD 5/23.

Mich., Charlevoix—SCHOOL—Charlevoix Twp. Bd. Educ., Charlevoix, Mich., 2 story, bsmnt., brick, steel, concrete high school, $650,000.

▲† **Mich., Detroit**—HOSPITAL—Veterans Admin., Vermont Ave. between H and I Sts., N.W. Wash., 25, D. C. 500-bed, brick, steel, concrete veterans hospital, 7 Mile Rd. and Lahser St. $9,800,000. CD 1/19/48.

▲ †**Mich., Grand Rapids**—HOSPITAL—Veterans Admin., Vermont Ave. between H and I Sts. N.W., Wash. 25, D. C., 200-bed brick, steel, concrete medical and surgical veterans hospital, $5,000,000. CD 1/19/49.

▲ † **Mich., Fort Custer**—CAMP ADDNS., etc.—Dpt. Army, Pentagon Bldg., Wash., D. C., camp addns., modification, $4,942,600.

▲ † **Mich., Ludington**—Dpt. Army, Pentagon Bldg., Wash., 25, D. C., classified project near Ludington, $440,200.

Minn., Minneapolis—SCHOOL—Bd. Educ., 807 Broadway, plans by Magney, Tusler & Setter, Foshay Bldg., and Perkins & Will, assoc. archts., 309 W. Jackson Bldg., Chicago 6, Ill., school, Sheridan and 56 Sts. $600,000. CD 1/12/50.

▲ **Mont., Billings**—SCHOOLS—School Dist. 2, plans by Cushing & Terrell, Billings, schools. $1,600,000. CD 3/16.

† **N. M., Los Alamos**—LABORATORY—U. S. Atomic Energy Comn., Los Alamos, plans by Ralph M. Parsons Co., 617 S. Olive St., Los Angeles, Calif., part of a laboratory bldg., approx. 28x186 ft., mono. concrete, 1 story partial bsmnt., incl. clearing, grading, paving, site imprvs. and utilities, Inv. 291-52-1. $550,000-$650,000.

▲ **N. Y., Brooklyn**—HOSPITAL—Dpt. P. Wks., Municipal Bldg., New York, Zone 7, plans by Andrew J. Thomas, 153 E. 38 St., New York, Zone 16, 11 story hospital, 2601-71 Ocean Parkway, HO-12, Coney Island Hospital. $12,000,000. CD 11/9/44.

▲ **N. Y., Mariners Harbor**—HOUSING—New York City Housing Auth., 63 Park Row, New York, Zone 7, low rent housing for 600 families on site bounded by Staten Island Rapid Transit Ry., Lockman Ave., Continental Pl. and Grandview Ave. $8,000,000.

▲ **N. Y., New York**—HOUSING—New York City Housing Auth., 63 Park Row, Zone 7, low rent housing, in Lawrence Ave. area for 700 families in area bounded by W. 167 St., University Ave., W. 165 St., and Mayor Deegan Blvd., $10,000,000.

▲ **N. Y., New York**—HOUSING—New York City Housing Auth., 63 Park Row, Zone 7, plans by Paul Resnick, 654 Madison Ave., Zone 21, housing, 15 buildings in area bounded by 163 St., 165 St., Trinity Ave., 166 St., and Tinton Ave. $12,860,000.

▲ **O., Fairborn**—HIGH SCHOOL—Bd. Educ., Meryl Tritt, pres. Fairborn, high school, $1,226,100.

† **Okla., Fort Sill**—BUILDINGS—U. S. Eng., P. O. Box 61, 2000 N. Memorial Dr., Tulsa, Zone 2, bldg. repairs at army camp, $500,000.

▲ † **Okla., McAlester**—AMMUNITION DEPOT ENLARGEMENT—Naval Ammunition Depot, McAlester, plans by Bailey & Bozarth, Colcord Bldg., Oklahoma City, enlarging the Naval Ammunition Depot. $24,886,000.

▲† **Tex., Brownwood**—BARRACKS, etc.—U. S. Eng., 606 Santa Fe Bldg., Galveston, barracks or housing, $3,000,000; general storage bldgs., $750,000, at Camp Bowie.

▲ **Tex., Port Arthur**—SCHOOLS—Port Arthur Independent School Dist., Port Arthur, voted bonds, Proj. 1, school, Park Pl., zone, $500,000; Proj. 2, school for Lakeview sect. $410,000; school remodeling, repairing, $900,000. Caudill, Rowlett, Scott & Neff, Port Arthur, archts. CD 5/3.

Tex., Sweetwater—HOUSING—Sweetwater Housing Auth., Sweetwater, plans by Boese & Harkrider, archts.-engrs., 208 Texas and Pacific Bldg., Fort Worth, 100 housing units. $750,000. CD 1/12/50.

▲ **Wash., Bellevue** — SCHOOLS — School Bd., Bellevue, plans by Naramore, Bain, Brady, & Johnson, 904 7 Ave., Seattle, Clyde Hill School, $450,000; Enetai School, $450,000; high school addn., $500,000.

Wash., Bethel—SCHOOL—School Dist. 403, Bethel, plans by Rueger & Rueger, Puget Sound Bank Bldg., Tacoma, high school, $879,900.

Wash., Bothell—SCHOOL—School Dist., Bothell, plans by G. W. Stoddard & Assocs., 1213 Westlake Ave. N., Seattle, 1 story, frame high school, $600,000. CD 3/20.

Wash., Oak Harbor—SCHOOL—School Bd., Oak Harbor, plans by Rueger & Ruger, Puget Sound Bank Bldg., Tacoma, school, $550,000.

Wash., Quillayute—SCHOOL—School Bd., Quillayute, plans by W. A. Johnson & Assocs., 1st Natl. Bank Bldg., Everett, school, $300,000.

Wash., Redondo—SCHOOL—Federal Way School Dist., Zone 210, Redondo, plans by J. W. Maloney, Central Bldg., Seattle, Zone 4, school addn. $800,000.

▲ **Wash., Seattle** — SCHOOLS — Highline School Dist., 401 253 S. 152 St., plans by Mallis & De Hart, Lyon Bldg., Zone 4, school, S. 146 St. and 22 Ave. S., $400,000 and Gregory Heights School $400,000; plans by A. C. Steinhart, Medical Arts Bldg., Shorewood Grade School, $350,000.

▲ **Wash., Vancouver**—SCHOOL—School Bd., Vancouver, plans by D. W. Hilborn, Vancouver, Senior High School, $2,500,000. CD 13/51.

▲† **Wis., Camp McCoy**—CAMP—Dpt. Army Pentagon Bldg., Wash., D. C., Camp McCoy extension, imprvts. $1,702,100.

B. C., Victoria—BARRACK BLOCK—Govt. of Canada, Dpt. National Defence ARMY, Cartier Sq., Ottawa, Ont. 180-man barrack block and mess hall, etc. $500,000. Defence Constr. Ltd., 360 Homer St., Vancouver, engr.

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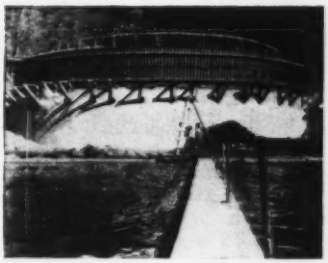
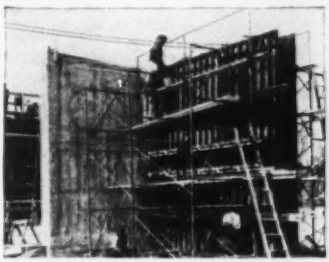


Speed forms as used on circular tank 80'-0" I.D. by 21'-0" high poured in three lifts of one set 8' forms. Water Supply System, St. Johnsville, N. Y., Morrell Vrooman Engineer, Weber Const. Co., Contractor.



Atlas SPEED Forms used at U. S. Engineers Flood Control Project, Ohio River. The units are set in 3' x 9' panels. Walls are 18' to 27' high. W. L. Johnson, General Contractors, Cincinnati, Ohio.

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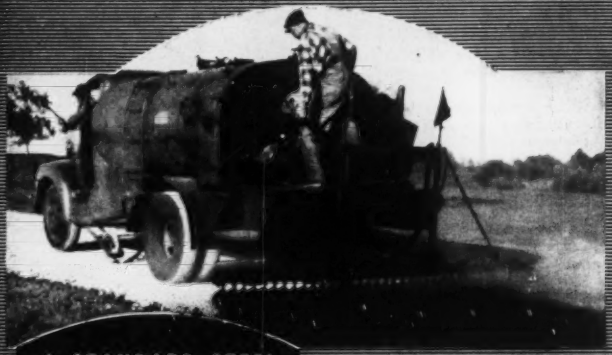

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MANUFACTURING ENGINEERS • 13 PARK ROW, NEW YORK 38, N. Y.

Newfoundland, St. John's—PUBLIC—Govt. of Canada, Hunter Bldg., Ottawa, federal public bldg. (offices) $500,000.

Ont., Windsor—HOME—Council, Mayor Arthur Reaume, Windsor, 150-bed convalescent home for the aged, Byng and Somme Rds. $600,000.

▲ Que., Cap Rouge—SCHOOL—Dpt. Youth & Social Welfare, Province of Quebec, Quebec City, School for Girls, $1,000,000.

COMMERCIAL BUILDINGS

Colo., Denver—CLUB—Denver Athletic Club, 1325 Glenarm Pl., plans by Orley Phillips, Insurance Bldg., 5 story on front 3 story in rear, 700,000 cu. ft. club, 8 bowling alleys, 2 handball courts, gymnasium, ballroom, 8 or 10 private dining rooms, 12 sleeping rooms, $850,000. Linder, Hodgson & Wright, 507 Insurance Bldg., consult. engrs. CD 6/18/45.

Conn., Newington—HOMES—Frank T. Ferrigno Constr. Co., 20 Nethersfield St., 180-200 new homes on 67 acre site, north of Dowd St., and east of Willard Ave.

Ill., Chicago—SCHOOL, etc.—St. Mary of Perpetual Help Parish, 1039 W. 32 Pl., plans by Edward Rubinski, 30 N. La Salle St., Zone 2, high school and elementary school modernization. $600,000.

Ill., Mount Prospect—RESIDENCES—Owner, c/o Jas. W. Viger, archt., 222 South Wapella St., Mount Prospect, 30 residences. $600,000.

Ind., Muncie—SHOPPING CENTER—Luther Rice Woodson, Muncie, plans by Kenneth L. Schellie, B of T Bldg., Indianapolis, Ind., shopping center on former Kiteelman Estate with parking space and 14 shops, $500,000.

▲ Ky., Covington—HOSPITAL—Roman Catholic Diocese of Covington, Covington, hospital, $1,500,000.

N. J., Trenton—APARTMENT DEVELOPMENT—Gladstone Gardens, 589 Central Ave., East Orange, plans by Erwin Gerber, 1180 Raymond Blvd., Newark, apartment development, $600,000.

▲ N. J., Trenton—APARTMENT DEVELOPMENT—Stuyvesant Park Apartments, Market St. Natl. Bank Bldg., Phila., Pa., plans by Erwin Gerber, 1180 Raymond Blvd., Newark, apartment development. Approx. $3,000,000.

▲ N. Y., Glen Oaks—HOSPITAL—Long Island Jewish Hospital, c/o Louis Abramson, archt., 25 W. 45 St., New York, Zone 19, 7 story hospital, 76 Ave., south of Hewlett Ave. $4,000,000.

▲ N. Y., New York—MEDICAL CENTER—Yeshiva University, Amsterdam Ave. and 187 St., Zone 33, plans by Isadore Rosenfield, 23 W. 47 St., Zone 19, medical center, incl. 12 bldgs. and basic science bldg., library administration, laboratories, auditorium, students residence, school of dentistry, school of nursing, nurses residence, utilities bldg., general hospital, Eastchester Rd. and Seminole Ave. $25,000,000.

N. Y., South Ozone Park—CHURCH, etc.—St. Anthony's Church, c/o A. J. DePace, archt., 151 W. 46 St., New York, Zone 19, 3 story church and auditorium, Rockaway Blvd., and 128 St. $600,000.

▲ O., LeRoy—OFFICE—Ohio Farmers' Insurance Co., Leroy, office. $1,000,000.

▲ Pa., Phila.—HOSPITAL—Jefferson Hospital Medical College, 1025 Walnut St., plans by Vincent G. Kling, 917 Corinthian Ave., nursing unit and hospital alterations, $5,000,000. NPA permit granted. CD 7/14.

▲ Tex., Angleton—DWELLINGS—A. J. Whipple, R. F. Jordan and Comer Burton, General Delivery, Angleton, Proj. No. 1, 80 frame dwellings, concrete slab fdn., $640,000; Proj. 2, 75 frame dwellings, concrete slab fdn., $590,000; Proj. 3, 55 frame dwelling units in single family and duplex, concrete slab fdn., $440,000.

Tex., San Antonio—EDUCATIONAL—First Baptist Church, 4 and Taylor Sts., plans by Will N. Noonan, 706 Travis Bldg., Henry Steinbomer, 912 Travis Bldg., 3 story, bsmnt., 50x608 sq. ft. education bldg., $650,000.

Alta., Edmonton—HOUSING—G. W. Golden Constr. Co., 8925 82 Ave., housing development in Silver Heights, subdivision, $700,000.

Ont., Port Hope—HOUSING—H. Smith, 75 Pine St., Port Hope, housing development at Ott Estate 40 acres, $500,000.

INDUSTRIAL BUILDINGS

▲ Ariz., Phoenix—SHOPS, etc.—General Motors Corp., General Motors Bldg., Detroit, Mich., shops, offices, laboratories, on 2280 acre proving ground, roads, 5 mile circular banked track, near here. $6,000,000.

▲ Ill., Chicago—REFINERY—Martin Oil Co., 131 St. and Kedzie-Worth Twp., oil refinery, incl. 3 warehouses, 16 car railroad siding, 15 storage tanks, on 61½ acres, near here. $5,000,000.

▲ Ill., Chicago—WAREHOUSE—National Archives Corp., 7 S. Dearborn St., Zone 3, warehouse. $1,000,000.

▲ Ill., East St. Louis—PLANT EXPANSIONS—C. K. Williams & Co., 2001 Lynch Ave., plant expansion, etc. to increase production of yellow iron oxide, $1,000,000. NPA permit granted.

Ind., Michigan City—PLANT—Joy Mfg. Co., J. D. A. Morrow, pres., Michigan City, plant addn. $800,000.

▲ Mich., Grand Blanc—FACTORY—General Motors Corp., Fisher Body Div., General Motors Bldg., Detroit, 486,240 sq. ft. factory, $10,000,000. CD 6/15.

Mich., St. Joseph—FACTORY—The Whirlpool Corp., St. Joseph, plans by Graham, Anderson, Probst & White, 80 E. Jackson St., Chicago, 4, Ill., factory addn., $500,000.

N. M., Angel Peak (Farmington P. O.)—PLANT—El Paso Natural Gas Co., Bassett Tower Bldg., El Paso, Tex., dehydration plant, $750,000.

N. M., San Juan—PLANT—El Paso Natural Gas Co., Bassett Tower Bldg., El Paso, Tex., purification plant, $950,000.

N. Y., New York—STORAGE—A. B. C. Television Center Co., Inc., 30 Rockefeller Plaza, Zone 20, plans by Carson & Lundin, 50 Rockefeller Plaza, Zone 20, storage, garage, shops bldg., alterations, 2040-2052 Broadway, $100,000; convert storage warehouse at 39-41 W. 66 St. into TV and broadcasting studio bldg., $610,000.

▲ N. C., Tryon—PLANT—Kilburn Mills, Rodney French Blvd., New Bedford, Mass., mfg. plant, site Vaughan's section, $2,000,000.

O., Wilmington—SUB-STATION—Daytown Power & Light Co., Gas and Electric bldg., power sub-station on 6 acre tract between Old Route 68 and Baltimore & Ohio R. R., south of here, and high tension line from Hutchings generating plant near Miamisburg to new sub-station, Orville Boerstler, supt. of power for company.

O., Youngstown—PLANT—Republic Rubber Div. Lee Rubber & Tile Corp., 1940 Schultz St., 80,000 sq. ft. plant addn. $2,000,000.

▲ Pa., Phila.—PLANT—Allied Chemical & Dye Corp., Barrett Div., Margaret and Bermuda Sts., triple capacity of plant to produce synthetic phenol, $8,000,000.

▲ S. C., Charleston—PLANT—Gulf Oil Corp., Hurt Bldg., Atlanta, Ga., oil canning plant on Shipyard River, $1,000,000.

Tenn., Nashville—PLANT—Ferro Corp., Harvard and E. 56 Sts., Cleveland, O., plant for mfg. fibre glass $500,000.

† W. Va., Rachel—PLANT—Sharon Steel Corp., Sharon Pa., coal-washing plant at Jo-Anne coal mines near here, $1,250,000.

▲ Ont., Courtright—REFINERY—Shell Oil Co. of Canada Ltd., 25 Adelaide St., Toronto, oil refinery, Approx. $3,000,000.

▲ Ont., Prescott—PLANT—Canadian Industries Ltd., 1135 Beaver Hall Hill, Montreal, Que., commercial chemicals plant, just west of here.

▲ Ont., Prescott—PLANT—R. C. A. Victor Radio Co., 1001 Lenoir St., Montreal, Que., electronics plant, Approx. $1,000,000.

▲ Ont., Toronto—FACTORY—John Inglis Co. Ltd., 14 Strachan Ave., plans by Allward & Gouinlock, 57 Bloor St. W., 150,000 sq. ft. factory for heavy industrial items and defence orders on 50-acre site, Pharmacy and Englinton Ave. East, $1,000,000.

▲ Que., Montreal—PLANT—Shell Oil Co. of Canada Ltd. 660 St. Catherines St. W., plant, at Montreal East at Sherbrook Est. E., $3,000,000.

▲ Que., Montreal—PLANT, etc.—Sperry Gyroscope Co. of Canada Ltd., 675 Dorchester St. W., plans by E. C. Miller, 485 McGill St., 210x240 ft. PLANT and 40x210 ft. OFFICE, 40x80 ft. SERVICE Bldg., all rein.-con., structural steel, brick, block, on Cote de Liesse Rd. Approx. $1,000,000. T. Pringle & Son Ltd., 485 McGill St., engrs. CD 3/12.

UNCLASSIFIED

▲ † Ill., Savannah—FACILITIES—Dpt. Army, Pentagon Bldg., Wash., D. C., addnl. facilities, $3,472,000.

Kentucky—RURAL DISTRIBUTION LINES—Southern Kentucky Rural Electric Co-operative Corp., Somerset, 305 mi. rural distr. line and sys. imprvs., Wayne Co. $840,000.

Montana—RURAL DISTRIBUTION LINES—Big Flat Electric Co-operative, Turner, 298.000 mi. electrical distr. line and sys. imprvs., Blaine Co. $850,000.

Nebraska—RURAL DISTRIBUTION LINES—Panhandle Rural Electric Membership Assn., Alliance, rural distr. lines Box Butte, Sioux, Morrill, Sheridan, Garden, Grant, Cherry, Arthur and McPherson Counties, $550,000. Raymond H. Reed & Co., Columbus, Neb., consult. engrs. CD 9/4/47.

▲ New Mexico—GAS LINES—El Paso Natural Gas Co., Bassett Tower Bldg., El Paso, Tex., 22.9 mi. 16 in. gas line from San Juan compressor station to Blanco Field, $575,000; 28 mi. 16 in. gas main from Blanco Field to Ignacio area near Shiprock, $700,000; field gas gathering pipe line sys. in San Juan area, $400,000.

S. C., Laurens—GAS SYSTEM—City, natural gas sys. $900,000-$900,000. Porter, Barry & Switzer, 545 Lee St., Baton Rouge, La., consult. engrs.

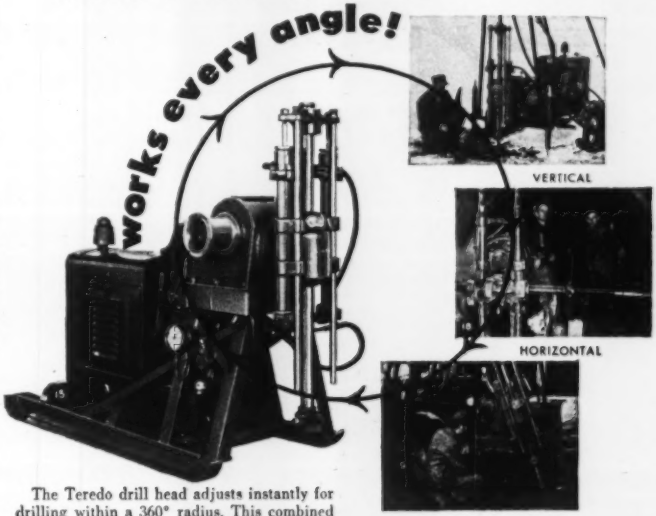
▲ † Tex., Brownwood—MISC. CONSTRUCTION—U. S. Eng., 606 Santa Fe Bldg., Galveston, misc. constr. at Camp Bowie, $2,750,000.

▲ Tex., Dallas—PIPE LINES, etc.—Dallas Power & Light Co., Dallas Power & Light Bldg., pipe lines, $350,000; imprv. street lighting, overhead transmission and distr. sys. $65,000; new transformers project, $600,000.

▲ Virginia—RURAL DISTRIBUTION LINES—Powell Valley Electric Co-operative, Jonesville, 235 mi. rural distr. lies, 19 mi. of tie lines, 48 mi. of transmission line and related sub-station, Lee Co. $1,655,000. CD 2/28/49.

▲ Wyoming—RURAL DISTRIBUTION LINES—Niobrara Electric Assn., Lusk, Wyo., rural distr. lines (Wyo 22C Niobrara) incl. constr. 794 mi. dist. lines, $1,225,000. CD 10/4/49.

The NEW Acker Teredo Drill...



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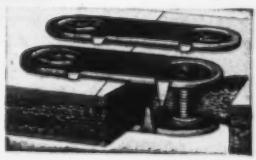

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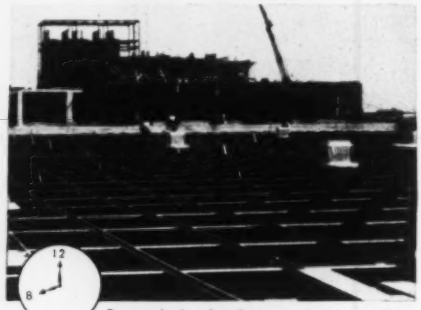
15,000 square feet of roof completed in *8* hours with Kaylo Insulating Roof Tile



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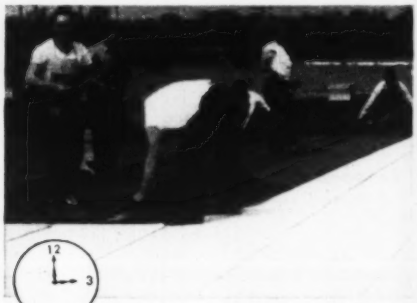
Placing of tile begun at 8 o'clock, is well under way by mid-morning. Kaylo Roof Tile—a hydrous calcium silicate, *not glass*—has billions of sub-microscopic air spaces giving it light weight and low thermal conductivity.

Grouting of end joints, including cleaning off excess grout, begun shortly after first tile were placed, is almost finished. Kaylo roof deck is incombustible; has more than adequate strength for typical roof loads.



Final step. Covering of the Kaylo roof deck with conventional built-up roofing materials was started as soon as the first section had been grouted. By 4:30, 15,000 sq. ft. of roof has been finished in an eight-hour work-day.

For complete details on Kaylo Insulating Roof Tile, write Dept. N-143, Owens-Illinois Glass Company, Kaylo Division, Toledo 1, Ohio.

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CONSTRUCTION REPORTS-Second Section

NEW ENGLAND

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ MASSACHUSETTS—Commonwealth of Mass Dpt. P. Wks., 100 Nashua St., Boston,

Berke Moore Co., Inc., 8 Newbury St., Boston, Mass. Contract Awarded, $1,499,978, est. $1,596,091, substructure for single and double deck elevated highway structure with approaches in city of Boston (Charlestown), Contr. B-1, sect. of Boston Central Artery. Bids Apr. 12. CD 3/29.

▲ MASSACHUSETTS—Commonwealth of Mass., Dpt. P. Wks., 100 Nashua St., Boston,

V. Barletta Co., 10 Walpole St., Roslindale, Mass., Contract Awarded, $3,145,672, Contr. C-1, substructure and approaches, Central Artery, Boston; $1,085,870, 2 continuous steel stringer bridges with approaches over B & M R. R., at Belmont. Bids June 12. CD 6/21, under LB.

▲† **W. H. Hinman, Inc.**, North Anson, Me. Contract Awarded, $3,611,000. Runways, taxiways and aircraft parking areas. Spec. No. 28171, BRUNSWICK, ME. Pub. Wks. Office, 495 Summer St., Boston, Mass. Fay, Spofford & Thorndike, 11 Beacon St., Boston, Mass., engrs., Thompson & Lichtner Co., Inc., 8 Alton Pl., Brookline, Mass., soil test and survey engr. Bids June 26. CD 6/4.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **D. A. Sullivan & Sons**, 82 North St., Northampton, Mass. Contract Awarded, $1,381,229, HOSPITAL addn., alterations, Beech St., HOLYOKE, MASS. Holyoke Hospital, 575 Beech St., Holyoke, Mass. Bids May 25, awarded June 15. CD 5/1.

▲ **Jefferson Constr. Co.**, 75 First St., Cambridge, Mass., Contract Awarded, $3,097,198, Mass 23-1, 300 unit HOUSING, Holyoke St., LYNN, MASS. Lynn Housing Auth., 58 Andrews St., Lynn, Mass. Bids May 29, awarded June 25. CD 6/12, under LB.

▲ **Platt Contr. Co., Inc.**, 99 First St., Cambridge, Mass. Low Bidder, $2,941,000 Prop. 1, $2,989,000 Prop. 2, for 300 units HOUSING PHA 7-3, NEW BEDFORD, MASS. New Bedford Housing Auth., New Bedford, Mass. Bids June 21. CD 5/31.

▲ **Jefferson Constr. Co.**, 75 First St., Cambridge, Mass., Contract Awarded, $1,759,198, PHA 20-1 Germantown HOUSING, QUINCY, MASS. Quincy Housing Auth., City Hall Annex, Quincy, Mass. Bids June 7, CD 6/21, under LB.

▲ **Concrete Constr. Co.**, 33 Garfield Ave., Chelsea, Mass. Contract Awarded, $1,041,000. PHA 41-1, Veterans HOUSING, Stanton Ave., Rose and Hutchinson Sts., REVERE, MASS. Revere Housing Auth., Revere, Mass. Bids 4/18, awarded 6/15. CD 4/25, under LB.

▲ **Jefferson Constr. Co.**, 75 First St., Cambridge, Mass. Low Bidder, $1,423,198, HOUSING PHA 17-1, TAUNTON, MASS. Taunton Housing Auth., Taunton, Mass. Bids June 19. CD 5/31.

▲ **E. Turgeon Constr. Co., Inc.**, 42 Weybosset St., Providence, R. I. Contract Awarded, $6,955,422. 632 HOUSING units, Hartford Park, FP R.I. 1-4, PROVIDENCE, R. I. Providence Housing Auth., 263 Chad Brown St., Providence, R. I. Bids May 23, awarded June 20. CD 5/31, under LB.

▲ **Gilbane Building Co.**, 90 Calverly St., Providence, R. I. Contract Awarded, $3,627,954, R.I. 1-5, PHA low rent HOUSING, Manton Heights, PROVIDENCE, R. I. Providence Housing Auth., 263 Chad Brown St., Providence, R. I. Bids June 17, awarded June 25. CD 6/26, under LB.

Frank P. Sullivan, Inc., 120 Tyler St., East Haven, Conn., Low Bidder, $516,938, SCHOOL, Talmadge Ave. off Short Beach Rd., EAST HAVEN, CONN. Town Bd. Educ., East Haven, Conn. Bids June 28.

▲ **Anderson-Fairoaks Constr. Co.**, 145 S. Marshall St., Hartford, Conn. Low Bidder, $1,644,000, PHA 502, HOUSING incl. 160 units, Yeaton St., NEW BRITAIN, CONN. City Housing Auth., City Hall, New Britain, Conn. Bids June 22. CD 6/8.

▲ **Vermilya Brown Co., Inc.**, 100 E. 42 St., New York, N. Y., Low Bidder, $1,118,000, HOSPITAL addn., NEW BRITAIN, CONN. New Britain Hospital, Corbin Ave., Extension, New Britain, Conn. Bids June 27. CD 6/14.

▲ **Fusco Amatruda Co.**, 59 Amity Rd., New Haven, Conn., Low Bidder, $2,199,785, Conn. 4-6 HOUSING, incl. 202 units NEW HAVEN, CONN. City Housing Auth., 200 Orange St., New Haven, Conn. Bids June 29.

▲ **Harry Maring Jr., Inc.**, 536 Lundley St., Bridgeport, Conn. Low Bidder, $1,225,550, South End Junior High SCHOOL, STRATFORD, CONN. Town Bd. Educ., Stratford, Conn. Bids June 19. CD 5/29.

▲ **Felix Buzzi & Son**, 612 S. Main St., Torrington, Conn., Low Bidder, $1,477,500, Vocational Technical SCHOOL, B/A-R-83, WATERBURY, CONN. State, P. Wks. Comm., Hartford, Conn. Bids June 20. CD 6/1.

MIDDLE ATLANTIC

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
BRIDGES
July 24, New Jersey
STREETS AND ROADS
July 17, 24, Massachusetts August 3, Pennsylvania
BIDS ASKED—BUILDINGS

▲ N. Y., Syracuse—HIGH SCHOOL—B.A. 7/16—City, 218 City Hall, William Nottingham High School, 3000 E. Genesee St. $2,500,000. Extended date.

▲ Md., Towson—HOSPICE—B.A. 7/19—Archdiocese of Baltimore, Mulberry and Charles Sts., 4 story masonry rein.-con. Stella Maris Hospital. $2,250,000. James R. Edmunds, Jr., 130 W. Hamilton St., Baltimore, archt. CD 10/10/49.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ PENNSYLVANIA—State Hy. Dpt., 405 North Office Bldg., Harrisburg.

Irving N. Loomis, 69 S. Main St., Montrose, Pa., Low Bidder, $259,129, crushed aggregate base, bit. surf. 13,950 ft., incl. 2 bridges, T. R. 70, Susquehanna Co. **John E. Boyer**, George Washington Hotel, Washington, Pa., $103,776, build-up and wid'n. pavement with crushed aggregate base and bit. surf. 7,132 ft. T. R. 28, Washington Co.

Burrell Const. & Supply Co., New Kensington, Pa., $224,473, surf. pavement with bit. surf., wid'n. crushed aggregate base, 23,249 ft. T. R. 51, Westmoreland Co.

Hempt Bros., Camp Hill, Pa., $158,662, crushed stone base and bit. surf. 9,115 ft. L.R. 66156 (1), York Co.

C. F. Coeringer Constr. Co. Inc., 73-75 E. Market St., Wilkes-Barre, Pa., $258,149, surf. pavement with bit. surf. 29,294 ft. T. R. 115, Luzerne Co.

The Interstate Amiesite Co., 265 Delaware Trust Bldg., Wilmington, Del., $247,578, build-up existing pavement with crushed aggregate base and bit. surf. 30,939 ft. T. R. 15 and 220, Lycoming Co.

Putnam & Greene, Inc., P. O. Box 512, Station A, Fort Wayne 3, Ind., $448,825, build-up and wid'n. pavement with crushed aggregate base and bit. surf. 38,114 ft. T. R. 219 and 6, McKean Co.

D. E. Smith, Inc., Mifflintown, Pa., $217,524, crushed aggregate base with bit. surf. 8,004 ft. T. R. U.S. 322, Mifflin Co.

Tri-County Constructors, High School Rd. and Harrison Ave., Elkins Park, Phila. 17, Pa., $275,405, wid'n. pavement with rein.-con. 6,813 ft. T. R. 611, Montgomery Co.

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Loading shovel capacity	5 cu. feet
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Loading clearance, loading shovel	10 feet

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YOUNGSTOWN 1, OHIO

M & K Contractors, Inc., Hanover, Pa., $76,956, bitulithic and surf. pavement with crushed aggregate and bit. 4,240 ft. T. R. 35, Snyder Co.

Allegheny Asphalt & Paving Co., 801 Bingham St., Pittsburgh 3, Pa., $269,719, surf. pavement with bit. surf. and widn. with plain. c. conc. base 34,349 ft. T.R. 160, Somerset Co.

Rife, Inc., 301 Clearview Rd., Hanover, Pa., $188,198, crushed stone base, with bit. surf. 5,385 ft. U.S. 140, Adams Co.

The Ray F. Yount Co. Inc., Box 101, Kittanning, Pa., $209,330, widn. pavement with plain c. conc. base and bit. surf. 9,993 ft. U.S. 422, Butler Co.

L. R. Owen Co., R.D. 2, Johnstown, Pa., $329,358, widn. surf. with plain C. conc. base and bit. surf. 23,447 ft. T.R. 219, Cambria and Indiana Counties.

Western Pennsylvania Asphalt Paving Co., P. O. Box 1381, Erie, Pa., $162,339, surf. pavement with bit. and widn. 21,444 ft. T.R. 6, 19, 27, 86, 98, Crawford Co.

W. L. Dunn Constr. Co., Adams St., Cochranton, Pa., $137,445, widn. pavement with crushed aggregate base and bit. 9,665 ft. T.R. U.S. 6, Crawford Co.

Charles H. Fry Constr. Co., 1903 Cherry St., Erie, Pa., $282,809, surf. pavement with bit. and repairs 8,825 ft. T.R. Alt. 5, Erie Co.

The Kelley & Meyer Co., 1211 Gibson St., Youngstown, O., $176,272, surf. pavement with bit. and repairs 20,664 ft. U.S. 19, 418, 518, Lawrence, Mercer Counties.

Collins & Maxwell, Inc., Easton, Pa., $84,275, surf. pavement with bit. surf. 11,002 ft. T.R. 22, Lehigh Co. Bids June 29. CD 6/7.

Stoffett & Tillotson, 2043 Eastburn Ave., Phila., Pa. Contract Awarded, $653,000, general constr. WAREHOUSE at Phila. (Eyberry) State Hospital, PHILA., PA. General State Auth., 18 and Herr Sts., Harrisburg, Pa. Bids May 29. CD 6/1, under LB.

▲ Construction Co. of Maryland (Myerberg Bros., 302 Park Ave., Samuel R. Rosoff, Ltd., 3001 Druid Park Dr.) 302 Park Ave., Baltimore 1, Md. Contract Awarded, $6,714,243. est. $6,500,000. 2 story, 85 bldgs., 642 brick, frame units, Cherry Hill HOMES addn. BALTIMORE, MD. Baltimore Housing Auth., 709 E. Eager St., Baltimore, Md. Bids June 21. CD 6/27, under LB.

SOUTH

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
BRIDGES
July 20 Alabama
STREETS AND ROADS
July 17 Virginia July 20 Alabama
July 25 Louisiana

HEAVY CONSTRUCTION
LOW BIDS AND CONTRACTS

† T. F. Scholes, Inc., 225 N. 6 St., Reading, Pa. Contract Awarded, $773,938, addnl. training railroad, Eng 44-210-51-42, FORT EUSTIS, VA. U. S. Eng., foot of Front St., Norfolk, Va.

▲ A. G. Pinkston & Co., 1805 County St., Portsmouth, Va. Contract Awarded, $1,343,545, rehabilitation sewerage syst. at Naval Shipyard, NOY 27111, PORTSMOUTH, VA. Pub. Wks. Office, Fifth Dist., Norfolk, Va. Bids June 5. CD 6/21, under LB.

† E. C. Ernst, Electric Contractors, 2622 34 St. N.W., Wash., D. C., Contract Awarded, $634,000, overhaul and rehabilitation electrical distr. sys., Marine Corps School, NOY 27005, Spec. 29007, QUANTICO, VA., Potomac River Naval Command, Naval Gun Factory Wash., 20, D. C. Bids June 25, awarded June 29.

† G. E. Moore Co., Inc., Greenwood, S. C. Contract Awarded, $944,629, petroleum oil lubricant storage facility at Donaldson Air Force Base, GREENVILLE, S. C., U. S. Eng., Custom House, Charleston, S. C. Awarded July 2.

▲† Conn Structors, Inc., Miami, Fla. Low Bidder, $1,316,539, supply office and warehouse, CHERRY POINT, N. C., Dist. Navy. Officer in Charge of Construction, Box 1365, Naval Base, S. C. Bids June 29.

▲† Merritt-Chapman & Scott Corp., 17 Battery Pl., New York, N. Y. Contract Awarded, $1,557,200, construct bulk aviation fuel plant, incl. railroad tracks and 14¼ mi. pipe line, Eng 38-081-51-8, CHARLESTON, S. C., U. S. Eng., Customhouse, P. O. Box 905, Charleston, S. C. Bids June 28, awarded June 30. CD 6/20.

▲ FLORIDA—State Rd. Dpt., Bradenton Memorial Pier Bldg., Bradenton, Fla.

Cone Bros. Constr. Co., P. O. Bo 1301, Tampa, Fla., Low Bidder, $164,887, resurf. Rds. No. 595 and 699, from Passagrille to city limits of St. Petersburg on Rds. 699 and 595, Job 1501-113 and 1510-111, Pinellas Co., $422,707, grading, paving, drainage structures, Rd. 60 from Hernando Co. line to Tarrytown, Job 1803-107, Sumter Co.

H. E. Wolfe Constr. Co., St. Augustine, Fla., $80,660, grading, stabilizing, paving, drainage structures, State Rd. 25, between State Rd. 630 and State Rd. 60, Job 5627-203, Polk Co.

Rich Constr. Co., Brooksville, Fla., $142,082, surf. course, Rd. 35, between Polk Co. Line and Rd. 39, Job 1407-108, Pasco Co.

W. M. Boozer Constr. Co., Marianna, Fla., $84,432, grading paving, storm drain Rd. 20, in Blountstown, Job 470-108, Calhoun Co.

Coggin & Deermont, Chipley, Fla., $202,000, grading, paving, Rd. 10 in Chipley from pt. west of Sinclair St. to E. Blvd., Job 6101-111 and Armory Rd. in Chipley from Rd. 273 to Road 10, Washington Co.

Cleary Bros. Constr. Co., West Palm Beach, Fla., $698,693, grading, paving, drainage structures, concrete bridge, etc. Rd. 717, from Rd. 80 to point approx. 1.5 mi. south of Pahokee, Job 9350-101, Palm Beach Co.

Brinson Constr. Co., P. O. Box 2209, Tampa, Fla., $69,094, grading, paving Rd. 5 relocation at Juno Beach southeast of Jupiter, Job 9304-110, Palm Beach Co. Bids June 26.

▲† **W. L. Cobb Constr. Co.**, P. O. Box 977, Tampa, Fla., Contract Awarded, $3,605,666, runway, taxiway, aprons drainage. **W. H. Herrin**, 612 Marble Arcade, Lakeland, Fla., $210,000, negotiated Jax 51-19, bachelor officers quarters at Pinecastle Air Force Base, ORLANDO, FLA. U. S. Eng., 575 Riverside Ave., Jacksonville, Fla. CD 1/31.

▲† **Harry R. Byers, Inc.**, Shoreham Bldg., Wash., D. C., Low Bidder, $1,125,000, steam electric generating plant, PENSACOLA, FLA. U. S. Naval Air Station, Bldg. 45, Pensacola, Fla. CD 2/27.

▲ **MISSISSIPPI**—State Hy. Comn., Jackson,
Pigford Bros. Constr. Co., Meridian, Miss., Contract Awarded, $136,217, est. $115,000, grade, drainage, culverts 1.653 mi. U. S. Hy. 65 and 84 through city of Natchez, F. A. Proj. U 266 (4), Adams Co.; $162,908, est. $175,000, grade, drain, culvert, bridge 4.361 mi. State Hy. 30 between Oxford and New Albany, F. A. Proj. F 044-1(2), Lafayette Co.; $111,982, est. $125,00, grade, drain, box culvert 5.399 mi. Miss. Hy. 30 between Enterprise and Oxford, F. A. Proj. F-044-1 (4), Union Co.

Clarke Bros., 1 Federal Savings & Loan Bldg., Jackson, Miss., $924,171, est. $930,000, c. conc. 4.371 mi. U. S. Rte. 90 between Biloxi and Gulfport, F. A. Proj. 003-1(2), Harrison Co.

R. S. Tyler Co., 144y Levering St., Louisville, Ky., $198,460, est. $177,000, bit. surf. 4.37 mi. U. S. Hy. 80 between Lawrence and Lake, F. A. Proj. FI 004-2(7), Newton Co.

Cook Constr. Co., Hy. 80 West, Jackson, Miss., $121,449, est. $112,000, grade, culverts, drainage 5.435 mi. Miss. Hy. 27 between Crystal Springs and Utica, F. A. Secondary Proj. S116 (4), Copiah Co.

Cobb Bros. Constr. Co., Meridian, Miss., $76,251, est. $85,000, grade, drainage, culverts 6.607 mi. Miss. Hy. 48 between Sandy Hook and Improve, F. A. Secondary Proj. S-185 (1), Waltham Co.

Cue & Jex, Bay St. Louis, Miss., $69,502, est. $75,000, grav. 5.448 mi. Miss. Hy. 590 between Ellisville and Seminary F. A. Sec. Proj. S-213 (1), Jones Co.

W. L. Wells Constr. Co., 524 Mitchell Ave., Jackson, Miss., $296,188, est. $280,000, grade, culverts, box bridge and bridge 11.493 mi. Miss. Hy. 69 between Columbus and Mississippi-Alabama line, F. A. Secondary Proj. S 751-1(1) Lownes Co. Bids June 26. Grand total $2,097,128. CD 6/15.

† **Cowan Lumber & Planing Mill Co.**, 4119 Clinton St., Nashville, Tenn. Contract Awarded, $512,349. rehabilitation hospital area at Keesler Air Force Base, Inv. 51-99, BILOXI, MISS. U. S. Eng., Box 1169, Mobile, Ala. Bids June 28. CD 6/18.

▲† **Cowan Lumber & Planing Mill**, 1419 Clinton St., Nashville, Tenn. Contract Awarded, $1,585,960, academic bldg. at Keesler Air Force Base, Inv. 51-98, BILOXI, MISS. U. S. Eng., Box 1169, Mobile, Ala., Bids June 27. CD 7/3, under LB.

▲ **T. L. James & Co.**, Box 531, Ruston, La. Contract Awarded, $7,984,360, est. $7,867,232, runway, taxiway and apron extens. at Lake Charles Air Force Base, Inv. 51-83, LAKE CHARLES, LA. U. S. Eng., 606 Santa Fe Bldg., Galveston, Tex. Bids June 29.

▲† **R. P. Farnsworth & Co.**, 1515 S. Salcedo St., New Orleans, La. Contract Awarded, $1,377,120, aircraft fueling facilities at Bardkdale Air Force Base, Inv. 51-48, SHREVEPORT, LA. U. S. Eng., 300 Broadway, Little Rock, Ark. Bids June 28. CD 6/14, under LB.

▲† **Johnson & Willard**, 422 W. Front St., Knoxville, Tenn. Low Bidder, $714,000. hangar, misc. bldg.*** **Harrison Constr. Co.**, Maryville, Tenn., $2,190,000, aprons, runway and taxiway at McGhee Tyson Air Force Base, KNOXVILLE, TENN. U. S. Eng., 303 U. S. Court House, Nashville 1, Tenn. Bids June 28. CD 6/13.

BUILDINGS
LOW BIDS AND CONTRACTS

▲† **States Constr. Co.**, Newport News, Va. Contract Awarded, $1,677,477, BARRACKS, and CENTRAL HEATING PLANT, Eng 44-110-51-11, FORT EUSTIS, VA. U. S. Eng., foot of Front St., Norfolk, Va.

State of Virginia, Richmond, Va., rejected bids June 12, CONTINUED IMPRVT. GROUP BLDG. at Eastern State Hospital, WILLIAMSBURG, VA. L.B. $985,000. CD 6/18, under LB.

Coggins Constr. Co., Inc., 1900 Hillsboro St., Raleigh, N. C. Low Bidder, $696,280, N. C. 5-3, 102 units, 17 bldgs. and maintenance bldg., HOUSING, NEW BERN, N. C. New Bern Housing Auth., New Bern, N. C. Bids June 20. CD 5/24.

T. A. Loving & Co., Bank of Wayne Bldg., Goldsboro, N. C., Low Bidder, $717,850, general constr. 4 story, 97x170 ft. STUDENT UNION BLDG., RALEIGH, N. C. North Carolina State College, J. G. Vann, bus. mgr., Raleigh, N. C. Bids June 28. CD 6/7.

▲ **Crystal Lumber Co.**, 620½ W. 4 St., Winston-Salem, N. C. Contract Awarded, $1,714,000, 240 DWELLINGS, Proj. NC 12-3*****Fowler Jones Constr. Co.**, Reynolds Bldg., Winston-Salem, N. C., $1,197,000, 160 DWELLINGS, N.C 12-4, WINSTON-SALEM, N. C. Winston-Salem Housing Auth., Reynolds Bldg., Winston-Salem, N. C. CD 6/29 and 6/14, under LB.

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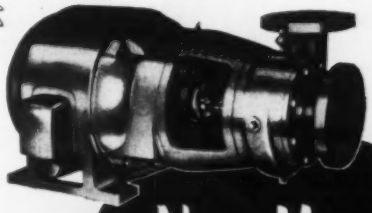

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† **M. B. Kahn Constr. Co.,** Blossom St., Columbia, S. C. Low Bidder, $682,315, rehabilitation company type KITCHENS, FORT JACKSON, S. C. Purch. & Contg. Officer, Fort Jackson, S. C. Bids June 27.

Coconato & Son, 2514 Broadway, Long Island City, N. Y. Contract Awarded, $582,269, construct, finance, manage, Wake Village HOUSING, at Parris Island Marine Base, PARRIS ISLAND, S. C. Pub. Wks. Office, Sixth Naval Dist., Box 365, Charleston Naval Base, S. C. Bids Mar. 7. CD 3/16, under LB.

† **McKoy-Helgerson Co.,** 320 S. Hudson St., Greenville, S. C. Contract Awarded, $508,000, rehabilitation utility bldg., PARRIS ISLAND, S. C. Pub. Wks. Office, Marine Corps Recruit Depot, Parris Island, S. C.

Joseph G. Moretti Co., Inc., 2401 N.W. 7 St., Miami, Fla., Contract Awarded, $916,291, 117 HOUSING units, KEY WEST, FLA. Key West Housing Auth., Key West, Fla. Bids June 22. CD 6/29, under LB.

▲ **Batson-Cook Co.,** West Point, Ga. Contract Awarded, $3,483,000, Project Ala 1-7, 500 HOUSING units, BIRMINGHAM, ALA. Birmingham Housing Auth., 600 N. 24 St., Birmingham, Ala. Bids June 26. CD 7/2, under LB.

Brice Building Co., P. O. Box 1028, Birmingham, Ala. Contract Awarded, $572,881, DORMITORY-DINING HALL, SEWANEE, TENN. University of the South, Sewanee, Tenn. Bids May 17. CD 5/24, under LB.

MIDDLE WEST

SOON LETS CONTRACT

▲ **Mich., Lansing**—FACTORY—Oldsmobile Div., General Motors Corp., 1014 Towsend St., soon lets contract foundations only factory, $14,000,000. CD 4/13.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲† **Kaighin & Hughes, Inc.,** 125 S. Huron St., Toledo, O., Contract Awarded, Approx. $1,500,000, install aircraft fuel facilities at Lockbourne Air Force Base, COLUMBUS, O. U. S. Eng., Madison Ave. and Eighth St. W., Huntington, W. Va. Awarded June 29.

▲† **Terry & Wright,** 209 Cabel St., Louisville, Ky., Contract Awarded, $1,470,000, Section B, flood control wall, Serial No. CIVENG 15-029-51-128, NEW ALBANY, IND. U. S. Eng. 830 West Broadway, Louisville, Ky. Bids June 19. CD 6/29, under LB.

▲† **Central Eng. Co.,** 2531 Rockingham Rd., Davenport, Ia., Contract Awarded, $2,505,023, channel paving and storm sewer, dredging, Fam Creek Imprvts., East Peoria. Tazewell Co., ILLINOIS. U. S. Eng., 520 Merchandise Mart, Chicago, 54, Ill. CD 5/13, under LB.

▲† **Johnson-Greene Co.,** Ann Arbor, Mich., Contract Awarded, $538,403, 2,800 ft. exten., southwest runway, 2,500 ft. taxiway, grading, drainage, underground, BATTLE CREEK, MICH. Dpt. Army, Major Ross M. Norwood, Commanding Officer, 172nd Fighter Squadron, Battle Creek, Mich. CD 2/6.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Mead Corp.,** S. Paint St., Chillicothe, O., Separate Contracts. Approx. $4,900,000. 2 story, 50x120 ft., concrete block PLANT, wood handling and treating facility bldg., wood barkers, chippers, furnace digester, 7,500 kw turbine, CHILLICOTHE, O. G. H. Pringle, c/o owner, consult. engr. CD 5/22/46.

▲ **Charles Shutrump & Sons,** 101 W. Hylda Ave., Youngstown, O. Contract Awarded. Approx. $1,000,000. 2½ story, 120x200 ft. LIBRARY, YOUNGSTOWN, O. Youngstown College, Wick Ave., Youngstown, O. CD 9/14.

▲ **Edward J. DeBartolo,** 80 Alburn Dr., Boardman, O. Owner Builds. $1,000,000. SHOPPING CENTER. West Side Shopping Center, Mahoning Ave. between Meridian Rd. and Dunlap Ave., YOUNGSTOWN, O.

▲ **Wides Constr. Co.,** 3000 E. Kesslee Blvd., Indianapolis, Ind. Owner Builds. $1,000,000, 100 HOMES, INDIANAPOLIS, IND.

▲ **Samuelson Constr. Co.,** 320 S. Clairmont Ave., Springfield, O., Contract Awarded. $1,000,000. FACTORY addn. and WAREHOUSE, RICHMOND, IND. International Harvester Co., 180 N. Michigan Ave., Chicago, 1, Ill. CD 3/27.

▲ **S. N. Nielsen Co.,** 3059 Augusta Blvd., Chicago, 12, Ill. Contract Awarded, $1,500,000 144 unit in two APARTMENTS, 2220 S. Princeton St., CHICAGO, ILL. Chicago Housing Auth., 608 S. Dearborn St., Chicago 6, Ill. Awarded June 4. Everett F. Quinn, 134 N. LaSalle St., Chicago, 2, Ill., archt. CD 2/2/50.

▲† **S. N. Nielsen Co.,** 3059 Augusta Blvd., Chicago, 12, Ill. Low Bidder, $1,049,000, 1 story research LABORATORY, near LEMONT, ILL. U. S. Atomic Energy Comm., Route 6 and Bailey Rd., Lemont, Ill. Bids June 26. CD 5/29.

Kucharo & Assocs., 225 Jewett Bldg., Des Moines, Ia. Low Bidder, $963,870. HOUSING and COMMUNITY BLDG., ROCK ISLAND, ILL. Rock Island Auth., Rock Island, Ill. Lankton & Ziegler, 100 Main St., Peoria, Ill., archts.

▲ **Christman Constr. Co.,** 408 Kalamazoo Plaza, Lansing, Mich., Low Bidder, $4,968,231. 8 story brick, steel, stone STATE OFFICE BLDG., W. Michigan Ave., W. Allegan, S. Chestnut and S. Pine Sts., LANSING, MICH. State, Amm A. N. Langius, dir. State Bldg. Dpt., Lansing, Mich. Bids June 27. CD 6/22.

▲ **O. W. Burke Co.,** 1032 Fisher Bldg., Detroit, Mich. Contract Awarded, $4,749,787, ADMISSION bldg., intensive TREATMENT HOSPITAL UNIT, STAFF BLDG. COTTAGES and DOCTORS HOUSES, Northville State Hospital, NORTHVILLE, MICH. State of Mich., A. N. Langius, dir. State Bldg. Dpt., Lansing, Mich. Bids May 16. CD 4/27.

WEST OF MISSISSIPPI

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
STREETS AND ROADS
July 17, 18, Kansas

BIDS ASKED—BUILDINGS

† **Tex., Amarillo**—PLANT—B.A. 7/24—U. S. Atomic Energy Comn., Chief Contract Dist., Jos Turan; Los Alamos, N. M., rehabilitation and construction masonry type structure Pantex plant, $250,000-$500,000. Plans deposit $50. Extended date. CD 7/3.

▲ **Tex., El Paso**—PLANT—Bids Asked—Standard Oil Co. of Texas, Womble Bldg., plant for production heating oils, gasoline, diesel fuels, $10,264,000; catalytic cracking unit, $5,500,000. CD 6/11.

SOON LETS CONTRACT—BUILDINGS

Tex., Baytown—SHOPS—Humble Oil & Refining Co., Box 3180, Houston, soon lets contract, 6 shops, $600,000. Wyatt C. Hedrick, 5201 Fannin St., Houston, engrs. and archts. CD 4/5.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

† **New London Materials & Constr. Co.,** 4613 Oak Dr., Minneapolis, Minn. Low Bidder, $991,488, bluff protection at Lock and Dam 1, Mississippi River, CIVENG 21-018-51-69, MINNESOTA. U.S. Eng., 1217 U. S. and Custom House, St. Paul 1, Minn. Bids June 21. CD 6/6.

▲ **IOWA**—State Hy. Comn., Ames.
Flinn Paving Co., 1900 Howard St., Sioux City, Ia. Contract Awarded, $601,518, b. conc. resurf. 40.445 mi. P-1017, Cass and Pottawattamie Counties.
Alexander Constr. Co., 4641 Hiawatha Ave., Minneapolis, Minn., $538,761, 32.728 mi. P-1014, Clarke and Decatur Counties. Bids June 26. CD 7/5, under LB.

▲ **IOWA**—State Hy. Comn., Ames,
Flinn Paving Co., 1900 Howard St., Sioux City, Ia. Low Bidder. $601,518. b conc. resurf. 40.445 mi. P-1017, Cass and Pottawattamie Counties.

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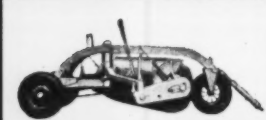

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Alexander Constr. Co., 4641 Hiawatha Ave., Minneapolis, Minn. $538,761. 32.728 mi. P-1014, Clarke and Decatur Counties.
Iowa Road Bldg. Co., Fairmont, Minn., $124,949, b. conc. pavement resurf. 8.237 mi. P-510, Keokuk-Mahaska Counties.
Hallett Constr. Co., Crosby, Minn. $277,041, b. conc. pavement resurf. 18.109 mi. P-1016, Marshall and Story Counties.
received no bids detour surf. 4 mi. FN-193, Calhoun and Green Counties. Bids June 26. CD 6/15.

IOWA—State Hy. Comm., Ames,
Fred Carlson Co., Decorah, Ia., Contract Awarded, $643,889 pavement widn. and resurf. 3.25 mi. U-200 (6), Black Hawk Co. Bids May 15. CD 5/21, under LB.

▲ **ARKANSAS**—State Hy. Dpt., Little Rock.
Reynolds & Williams, Tyler, Tex. Contract Awarded. $116,971. Road work Pauls Spur-Northwest Rd., Miller Co.; $147,711, road and bridge work, between Mena and Oklahoma State Line, Polk Co.; $98,957, road and bridge work, between Mena and Cherry Mill, Polk Co.; $220,521, road work on Searcy-West Road, White Co.; $193,236, road work on Gurdon-North Road, Clark Co.
Southeast Constr. Co., 127½ Main St., Pine Bluff, Ark., $149,757, 5 mi. road work Gregory, Woodruff Co.; $138,079, stone base and surf. on Berryville-North and other roads, Carroll Co.; $71,744, base and surf., Clarksville-Ozone Road, Johnson Co.; $632,038, surf. Bismarck-Hy. 270 Road, Hot Spring Co.
S. M. Dixon Constr. Co., Warren, Ark., $147,596, road work on Mufreesboro-Delight Rd., Pike Co.; $228,936, 7 mi. road work Wilmar, Drew Co.
Buc-Ton Constr. Co., Hazen, Ark., $158,605, road work, Curtis-North Rd., Clark Co.
Ben M. Hogan Co., 1100 Fairview St., Little Rock, Ark., $108,492, bit. Vannidale-North Road, Cross Co.; $279,600, c. conc. Beasley-Marked Tree Rd., Poinsett Co.
D. F. Jones Constr. Co. Southern Natl. Bldg., Little Rock, Ark., $253,226, stone base and b. conc. Gilmore-Gealey Poinsett Co.
Mississippi Valley Constr. Co., Paragould, Ark., $227,810, base course and bit. Waldenburg Rd., Poinsett Co.
Southwest Gen. Constr. Co., Reserve Loan Bldg., Dallas, Tex., $493,816, road work between Fulton and Hope, Hempstead Co. Grand total $3,098,095. Bids June 27.
Reichman-Crosby, 223 S. Front St., Memphis, Tenn. Low Bidder. $66,842. Imprv. water sys., WARREN, ARK. City, Warren, Ark. Bids June 21.

▲† **Hallett Constr. Co.,** Crosby, Minn., and Continental Co., Dayton, O. Low Bidders, $5,375,000, est. $5,801,463, construct Bismarck-Mobridge-Oahe transmission line and construct Fort Randall-Oahe 230 kv transmission line, Spec. DC 3498 and DC 3409, NORTH DAKOTA and SOUTH DAKOTA. Bureau Reclamation, Dpt. Interior, Bismarck, N. D. Bids June 12. CD 5/9.

† **Allis-Chalmers Mfg. Co.,** 1126 S. 70 St., Milwaukee, Wis. Contract Awarded, $590,908, main leads, main and neutral switchgear at Fort Randall Reservoir Proj. Inv. 131, near Lake Andes, SOUTH DAKOTA. U. S. Eng., 1709 Jackson St., Omaha, Neb. Bids June 1. CD 6/14, under LB.

▲† **Donovan-Lovering-Boyle Co.,** 2480 N. Elston St., Chicago, Ill. Contract Awarded, $12,955,329, power house for Fort Randall Reservoir, Inv. 102, near Lake Andes, SOUTH DAKOTA. U. S. Eng., 1709 Jackson St., Omaha, Neb. Bids June 26. CD 6/28, under LB.

▲† **Foster-Smetana Co.,** 4360 Nicholas St., Omaha, Neb. Contract Awarded, $1,074,000, airmen's dormitories, barracks, at Offutt Air Force Base, FORT CROOK, NEB. U. S. Eng., 1709 Jackson St., Omaha, Neb. Bids May 24. CD 6/6, under LB.

▲† **L. G. Barcus & Sons,** 1430 State St., Kansas City, Kan. and **J. A. Tobin Constr. Co.,** 3700 Rainbow St., Kansas City, Kan. Contract Awarded, $1,375,325, Fairfax Jersey Creek unit, reconstruction of Jersey Creek Sewer, Inv. 110, Kansas City, KANSAS. U. S. Eng., 601 Davidson Bldg., Kansas City, Mo. Bids Apr. 24. CD 5/1, under LB.

▲† **Southwest General Constr. Co.,** 426 Reserve Loan Life Bldg., Dallas, Tex. Low Bidder, $526,813. 180,000 sq. yd. connected paving, taxiways (rein.-con. type); $506,290, 4,000 lin. ft. rein.-con. runway extens. Inv. No. Eng 41-253-51-49, BRYAN, TEX. U. S. Eng., 606 Santa Fe Bldg., Galveston, Tex. Bids June 30. CD 3/21, under LB.

▲† **McKenzie Constr. Co.,** Box 806, San Antonio, Tex. Low Bidder, $2,076,000, est. $1,836,000. 120,000 sq. ft., structural steel with insulated metal siding, communications maintenance bldg., with boiler plant for heating, Inv. No. Eng 41-243-51-84, KELLY FIELD, TEX. U. S. Eng., 606 Santa Fe Bldg., Galveston, Tex. Bids June 29. CD 6/7.

▲† **Martin K. Eby Constr. Co., Inc.,** 600 N. Main St., Wichita, Kan., Contract Awarded, $5,085,000. military facilities, 5 bachelor quarters, mess hall, 28 airmen's dormitories, 3 mess-administration bldg., and accompanying facilities, Wichita Air Base, WICHITA, KAN. U.S. Eng., Davidson Bldg., Kansas City 8, Mo. Bids June 20, awarded June 26. CD 6/13.

▲† **J. W. Bateson Co.,** Irwin-Keasler Bldg., Forth Worth, Tex., Contract Awarded, $2,647,032, construct airmen's quarters and administration bldg. at Big Spring Air Force Base, BIG SPRING, TEX. U.S. Eng., 1127 Texas and Pacific Bldg., Fort Worth, Tex. Bids June 12, awarded June 25. CD 6/21, under 1LB.

† **Heldenfels Bros.,** Box 1917, Corpus Christi, Tex., Low Bidder, $605,888, est. $1,750,000, rebuilding runways, South Field, Contr. NOY 28970, KINGSVILLE,

TEX. U. S. Govt., Officer In Charge Construction, Naval Air Station, Corpus Christi, Tex., Bids June 25. CD 6/21.

▲† P. B. Montgomery, 3121 N. Harwood St., Dallas, Tex., Contract Awarded, $3,525,175, airmen's dormitories, 2,366, mess halls, Inv. No. Eng. 34-066-51-39, WICHITA FALLS, TEX. U. S. Eng., Box 61, Tulsa 2, Okla. Bids June 12, awarded July 2. CD 6/21, under LB.

BUILDINGS
LOW BIDS AND CONTRACTS

J. E. Pyle, Commercial National Bank Bldg., Little Rock, Ark. Contract Awarded, $519,098, Proj. ARK 5-2, 76 HOUSING units, BLYTHEVILLE, ARK., Blytheville Housing Auth., Blytheville, Ark. Bids June 19. CD 6/28, under LB.

James B. Dent, Box 6275, Houston, Tex., Contract Awarded, $858,683, Tex. 35-1, 45 DWELLING UNITS, Tex. 35-2, 40 dwelling units, appurtenances, BAY CITY, TEX., Bay City Housing Auth., Bay City, Tex. Bids June 14, awarded June 27. CD 6/21, under LB.

Marine Constr. Co., Port Lavaca, Tex., Low Bidder, $607,386, Div. III, for rein. con. fdns. for West Dallas HOUSING. Proj. Tex. 9-11***Interstate, Inc., 1112 Forrest St., Dallas, $71,000 Div. I demolition*** Condon-Cunningham Co., 4229 Lafayette St., Omaha, Neb., $231,000. Div. 2 site preparation. DALLAS, TEX., Dallas Housing Auth., 2525 Lucas Dr., Dallas, Tex. Bids June 26. Forrest & Cotton, Praetorian Bldg., Dallas, Tex., engrs.

▲ J. J. Fritch Constr. Co., 6834 Harry Hines Blvd., Dallas, Tex. Low Bidder, $1,886,700. Tex. 9-8, 295 low cost brick HOUSING units, concrete slab fdn., Canaan St., DALLAS, TEX. Dallas Housing Auth. 2525 Lucas Dr., Dallas, Tex. CD 6/14.

▲† Nathan Wohlfeld, Box 7084, Love Field Branch, Dallas, Tex. Low Bidder, $2,778,453, est. $2,200,000, eight 3 story masonry 225-man barracks, approx. total 305,000 sq. ft., Inv. No. Eng 41-243-51-69, FORT HOOD, TEX. U. S. Eng., 606 Santa Fe Bldg., Galveston, Tex. Bids June 27. CD 6/13.

† Quincy Lee Constr. Co., 211 W. Olmos Dr., San Antonio, Tex. Low Bidder, $577,360, rehabilitation and exten. facilities for HOSPITAL, Inv. No. Eng. 41-242-51-99, FORT HOOD, TEX., U. S. Eng., 606 Santa Fe Bldg., Galveston, Tex. Bids June 30.

McCann Constr. Co., 1813 E. Lancaster St., Fort Worth, Tex. Contract Awarded, $533,500. Tex. 50-1, 28 HOUSING units, Tex. 50-2, 54 dwelling units, HENDERSON, TEX. Henderson Housing Auth., Henderson, Tex. Bids June 12, awarded June 28. CD 6/19, under LB.

Thomas & Carol Constr. Co., c/o Oak Meadows Addn., Houston, Tex. Owner Builds. Approx. $525,000. 58 DWELLINGS, HOUSTON, TEX. CD 5/18.

Farnsworth & Chambers Co., Inc., Box 74, Houston, Tex. Contract Awarded, $715,600. 100 HOUSING units, ORANGE, TEX. Orange Housing Auth., Orange, Tex. Bids June 22. CD 6/28, under LB.

▲ Knutson Constr. Co., Commerce Bldg., Houston, Tex., Contract Awarded, $1,083,700. 152 unit Carver Courts HOUSING, Project Tex. 34-2, PORT ARTHUR, TEX. Port Arthur Housing Auth., Port Arthur, Tex. Bids June 22, awarded June 28. CD 7/2, under LB.

† Winger Constr., 1200 E. Main St., Ottumwa, Ia. Low Bidder, $740,000, est. $674,774, addnl. power and steam supply facilities, turbo-generator, boiler, fans, pumps, etc., Inv. No. 291-51-112, LOS ALAMOS, N. M. U. S. Atomic Energy Comn., Los Alamos, N. M. Bids June 27. CD 6/11.

▲† Robert E. McKee, Box 1706, Santa Fe, N. M. Low Bidder, $1,357,000, est. $1,250,000-$1,500,000, 70,000 sq. ft. LABORATORY MAINTENANCE SHOPS, Inv. No. 291-051-129, LOS ALAMOS, N. M. U. S. Atomic Energy Comn., Los Alamos, N. M. Bids June 28, CD 6/11.

FAR WEST

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
BRIDGES
July 26, California
STREETS AND ROADS
July 26, California

BIDS ASKED—BUILDINGS

▲ Calif., Newport Beach—HOSPITAL—B. A. 7/27—Hoag Memorial Hospital, c/o Chambers & Hibbard, archts., 124 W. 4 St., Los Angeles. 74-bed hospital, Newport Blvd. and Hy. 101. $1,000,000. CD 8/25/50.

HEAVY CONSTRUCTION
LOW BIDS AND CONTRACTS

▲† TGK Constr. Co., Inc., 802 Security Bldg., Phoenix, Ariz., Low Bidder, $600,000, 2 story, 160x211 ft. Ieanto warehouse, repair shops, motor pool; Daley Constr., Acme Material Co., 2400 S. 16 St., Phoenix, Ariz., $426,000, paving 250,000 sq. ft. parking apron for new national guard base, Sky Harbor Airport, PHOENIX, ARIZ. National Guard Bureau, 747 W. Van Bureau St., Phoenix, Ariz. Bids June 10.

† Del E. Webb & San Xavier Constr. Co., Box 4066, Phoenix, Ariz. Contract Awarded, $835,559, est. $1,000,000, railroad relocation at Davis-Monthan Air Force Base, ENG 04-353-51-109, TUCSON, ARIZ. U. S. Eng., 751 S. Figueroa St., Los Angeles, Calif. Bids June 18. CD 6/25, under LB.

▲† N. M. Sundt Constr. Co., 440 S. Park Ave., Tucson, Ariz., Contract Awarded, $1,953,639, est. $2,500,000,

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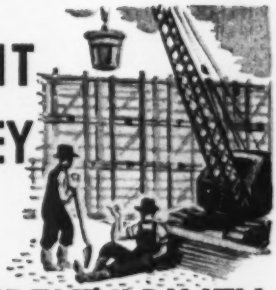

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Runway 6 and taxiways, ENG 04-353-51-95, Davis-Monthan Air Force Base, TUCSON, ARIZ. U. S. Eng., 751 S. Figueroa St., Los Angeles, Calif. Bids June 22, awarded June 30. CD 6/29, under LB.

† **Pieler Constr. Co., Inc.**, Shafer Bldg., Seattle 1, Wash. Low Bidder, **$846,674**, est. $912,801. 1,700 ft. runway extens. and alert apron at Paine Air Force Base, EVERETT, WASH. U.S. Eng., 4735 E. Marginal Way, Seattle 4, Wash. Bids June 27.

† **Manson Constr. & Eng. Co.**, 821 Alaskan Way, Seattle 4, Wash. Contract Awarded, **$712,436**, rehabilitate Piers A, B, and C at Industrial Reserve Shipyard, Specs. 28412 EVERETT, WASH. Yards & Docks Annex, Navy Dpt., Arlington, Va. Bids June 8. CD 6/12, under LB.

† **Mac Rae Bros.**, 2733 4 Ave. S., Seattle, Wash. Low Bidder, **$764,349**, addnl. aviation-fuel storage facilities at Naval Supply Depot, Spec. 29289, MANCHESTER, WASH. Pub Wks. Officer, 13th Naval Dist., 1601 W. Wheeler St., Seattle, Wash. Bids June 29. CD 6/20.

▲† **Lease & Liegland**, 1501 N. 35 St., Seattle 3, Wash. Low Bidder, **$1,224,500**, est. $1,137,825, 385x348 ft. reinf.-con. HOSPITAL at Larson Air Force Base, Inv. No. 51-16, MOSES LAKE, WASH. U. S. Eng., Bldg. 602, City-County Airport, Walla Walla, Wash. Bids June 26.

▲† **Dahigren Constr. Co.**, 2016 30 Ave. S., Seattle, Wash. Low Bidder, **$1,429,856**, est. $1,697,374, bulk petroleum storage facilities, ENG 45-108-51-186, MUKILTEO, WASH. U. S. Eng., 4735 E. Marginal Way, Seattle 4, Wash. Bids June 27. CD 6/7.

† **T. E. Connolly, Inc.**, Sheldon Bldg., San Francisco, Calif., Contract Awarded, **$642,692**, constr. diversion tunnel access road, Folsom Reservoir Proj., CALIFORNIA. U. S. Eng. Wright Bldg., Sacramento, Calif. Bids May 1. CD 5/8, under LB.

† **C. Norman Peterson**, 2832 9 St., Berkeley, Calif., Contract Awarded, **$528,351**, fuel storage, receiving and dispensing facilities at Naval Auxiliary Air Station, CROWS LANDING, CALIF. Twelfth Naval Dist., Federal Office Bldg., San Francisco, Calif. Bids June 26, awarded June 29. CD 7/5, under LB.

▲† **United Concrete Pipe Corp.**, Box 425, Baldwin Park, Calif., Contract Awarded, **$1,307,000**, paving, fencing, drainage etc., at Crows Landing Auxiliary Air Station Spec. 29137, CROWS LANDING, CALIF. Twelfth Naval Dist., Federal Office Bldg., San Francisco, Calif. Bids June 21, awarded June 27. CD 7/3, under LB.

▲† **Bressi & Bevanda Constructors, Inc.**, 6950 Tujunga St. and **A. Teichert & Sons**, 12404 Riverside Dr., Los Angeles, Calif., Low Bidders **$6,490,000**, extend, strengthening runways at El Toro Marine Corp. Base, Spec. 29805, EL TORO, CALIF. Dpt. Navy, Eleventh Naval Dist., San Diego, Calif. Bids June 28. CD 6/13.

† **United Construction Co.**, P. O. Box 11887, Long Beach, Calif. Contract Awarded, **$780,715**, subsidence remedial structures, etc. third increment, Long Beach Naval Shipyard, Spec. 29687, LONG BEACH, CALIF. P. Wks. Office, U. S. Naval Air Station, Long Beach, Calif. Bids June 26, awarded June 27. CD 7/3, under LB.

▲ **Los Angeles Harbor Dpt.**, City Hall, Los Angeles, Calif., rejected bids June 13, transit shed facilities at Berths 196-197, LOS ANGELES, CALIF. LB, **$7,294,000**. CD 6/19, under LB.

Pacific Iron & Steel Co., 11633 S. Alameda St., Los Angeles, Calif. Contract Awarded, **$776,570**, furnish, erect structural steel only at wharf, rigid steel frame cargo shed, Wilmington, LOS ANGELES, CALIF. Harbor Dpt., City Hall, Los Angeles, Calif. CD 5/27/49.

▲† **Morrison-Knudsen Co.**, 411 W. 5 St., Los Angeles, Calif. **Macco Corp.**, 14000 S. Paramount Blvd., Paramount, Calif. and **Ford Twaits Co.**, 449 S. Beaudry St., Los Angeles, Calif., Low Bidder, **$3,370,000**, constr. runway 6R-24L etc., Spec. 29062, MIRAMAR, CALIF. Eleventh Dist., San Diego, Calif. Bids June 29. CD 6/13.

† **Howard J. White, Inc.**, 44 Encina Ave., Palo Alto, Calif. Contract Awarded, **$846,409**, addns. alterations to Bldg. 19 Naval Air Station, Spec. 29626, MOFFETT FIELD, CALIF. Twelfth Naval Dist., Federal Office Bldg., San Francisco, Calif. Bids June 21, awarded June 26. CD 7/2, under LB.

▲† **R. R. Hensler**, 7650 Wheatland Ave., Los Angeles, Calif., Low Bidder, **$1,307,000**, extending, strengthening Runway 12-30, Spec. 29079, MOJAVE, CALIF. Eleventh Naval Dist., San Diego, Calif. Bids June 27. CD 6/13.

† **Gordon Fields**, 3383 Broadmoor St., San Bernardino, Calif. Contract Awarded **$630,536**, est. $500,000 warehouse, shop instrumentation bldg. at Edwards Air Force Base, ENG 04-353-51-84, MUROC, CALIF. U. S. Eng., 751 S. Figueroa St., Los Angeles, Calif. Bids June 8, awarded June 11. CD 6/12.

† **E. C. Braun**, 2159 4 St., Berkeley, Calif., Low Bidder $549,530, rehabilitate steam distr. system, etc., at U. S. Naval Hospital, Spec. 29635, OAKLAND, CALIF. Twelfth Naval Dist., Federal Office Bldg., San Francisco, Calif. Bids June 21.

† **Ofcco Constr. Co.**, 2650 Cherry Ave., Long Beach, Calif., Low Bidder, **$892,500**, boiler house and equipment SAN DIEGO, CALIF. Dpt. Navy, Eleventh Naval Dist. San Diego, Calif. Bids June 28.

BUILDINGS

LOW BIDS AND CONTRACTS

J. R. Porter Constr. Co., 3407 N. 7 St., Phoenix, Ariz., Low Bidder, **$867,870**, STUDENT MEMORIAL bldg., Arizona State College, FLAGSTAFF, ARIZ. State, Arizona State College, Flagstaff, Ariz. Bids June 20. CD 5/25.

▲ **Lewis Constr. Corp.**, Lowman Bldg., Seattle, 4, Wash., Contract Awarded, **$3,000,000**, 75-unit HOUSING, BREMERTON, WASH. Ridge View Corp., c/o contractor, E. W. Morrison, 719 2 Ave., Seattle, 4, Wash., engr. CD 2/12.

▲**Deaconess Hospital**, 733 4 St., Spokane, Wash., rejected bids June 15, 6 and 7 story HOSPITAL addn., SPOKANE, WASH. LB. **$2,044,500**. CD 6/26, under LB.

† **L. A. Hopkins**, Yakima, Wash., Low Bidder, **$531,905**, est. $528,453, three 35x58 ft. and one 33x37 ft., reinf.-con. masonry HEATING PLANTS, 25x139 ft. masonry phone bldg. 47x60 ft., 25x80 ft. frame fire station, etc. at training center, Inv. 51-193, YAKIMA WASH. U. S. Eng., 4735 E. Marginal Way, Seattle, 4, Wash. Bids June 22.

▲ **M & K Corp.**, 405 Montgomery St., San Francisco, Calif., **Fredrickson & Watson Constr. Co.**, 873 81 St., Oakland, Calif., and **Piombo Constr. Co.**, 1571 Turk St., San Francisco, Calif., Low Bidder **$6,090,000** general contract; **Ets-Hokin & Galvin**, 551 Mission St., San Francisco, Calif. **$808,613**, electrical work for Atascadero State HOSPITAL, ATASCADERO, CALIF. State Div. Architecture, P. Wks. Bldg., Sacramento, Calif. Bids June 26.

Arthur Pinner Jr., 9510 S. Main St., Los Angeles, Calif., Contract Awarded, **$617,900**, 1 story, frame, stucco Ramona SCHOOL addn., BELLFLOWER, CALIF. Bellflower School Dist., 6145 N. Clark Ave., Bellflower, Calif. Bids May 16. CD 5/24, under LB.

Harris Constr. Co., P. O. Box 109, Fresno, Calif. Contract Awarded, **$562,247**, HEALTH CENTER, PRIMARY BLDG. at Fresno County General Hospital, FRESNO, CALIF. Fresno Co., Court House, Fresno, Calif. Bids May 24, awarded June 25. CD 6/4, under LB.

▲ **Pacific Coast Builders**, 2530 18 St., San Francisco, Calif., Low Bidder, **$1,033,600, 118** DWELLING units Cal 6-10***Better Homes Co.**, 2318 Blackstone St., Fresno, Calif., **$399,875**, 50 dwellings in Funston Place, Cal 6-9***Midstate Constr. Co.**, Bank of America Bldg., Fresno, Calif., **$573,333**, 78 dwelling units, Sequoia Courts, Cal 6-5***L. H. Hansen & Son**, 313 Fresno St., Fresno, Calif., **$532,500**, 72 dwelling units, Sierra Plaza Cal. 6-6***H. E. Pries**, 6741 Baich St., Fresno, Calif., **$481,674**, 58 dwellings Monte Vista Housing Cal 6-7***Harris Constr. Co.**, P. O. Box 109, Fresno, Calif., **$518,433**, 74 dwelling units, Fairview Heights unit 6-4, FRESNO, CALIF. Housing Auth. of Fresno, 2551 Vassar Terrace, Fresno, Calif. Bids June 21. CD 6/11.

▲† **Louis C. Dunn, Inc.**, 799 Monadnock Bldg., San Francisco, Calif. Contract Awarded, **$2,448,500**, 2 WAREHOUSES, and utilities, road and railroad Sharpe General Depot, (Tracy Annex), Spec. 1557, LATHROP, CALIF. U. S. Eng., Wright Bldg., Sacramento, Calif. Bids Apr. 6. CD 7/2, under LB.

▲ **Robert E. McKee, Inc.**, 4700 San Fernando Rd. West, Los Angeles, Calif., Low Bidder, **$9,793,000**, general contract***Abbett Electric Co.**, 472 Tehama St., San Francisco, Calif., **$1,337,450** electrical work***S. Glenn Hickman Co.**, 3170 E. 11 St., Los Angeles, Calif. **$3,474,000**, plumbing work***Harold E. Petersen, Inc.**, 1350 Elwood St., Los Angeles, Calif., **$1,397,479**, heating and ventilating, for MEDICAL CENTER, LOS ANGELES, CALIF. Bd. Regents, University of California, 405 Hilgard Ave., Los Angeles, Calif. Bids June 28. CD 5/28.

▲ **Wm. C. Crowell**, 170 E. California St., Pasadena, Calif. Contract Awarded, **$1,033,200**, ALCAZAR HEADQUARTERS for Los Angeles Co. Flood Control Dist., LOS ANGELES, CALIF. Bd. Supervs. Los Angeles Co., 501 Hall of Records, Los Angeles, Calif. Bids May 29, awarded June 15. CD 6/4, under LB.

† **Pacific Coast Builders**, 2530 19 Ave., San Francisco, Calif., Contract Awarded, **$579,200**, 76 family units Proj., CAL 11-6, NORTH RICHMOND, CALIF. Housing Auth. of Contra Costa Co., 700 D. Martinez, Calif. Bids June 20, awarded June 28. CD 6/11.

▲ **Williams & Burrows, Inc.**, 10 California Dr., Burlgame, Calif. Contract Awarded, **$1,934,000**, 260-unit low rent HOUSING, OXNARD, CALIF. Housing Auth. of Oxnard, 871 W. 7 St., Oxnard, Calif. Bids June 22, awarded June 28. CD 6/20, under LB.

▲ **State Div. Architecture**, P. Wks. Bldg., Sacramento, Calif., rejected bids general constr. HOSPITAL ADMINISTRATION bldg., Institution of Epileptics, PORTERVILLE, CALIF. CD 7/21, under LB.

▲ **Central State Constr. Co.**, 593 Market St., San Francisco, Calif., Contract Awarded, **$1,144,444**, 3 story, bsmnt., 72-bed steel, reinf.-con. Mercy HOSPITAL, REDDING, CALIF. Sister of Mercy, Diocese of Sacramento, 1119 K St., Sacramento, Calif. Bids June 19, awarded June 25. CD 7/2, under LB.

▲ **Harvey & Rose**, Box 736, Arcadia, Calif., Contract Awarded, **$2,154,714**, 300 public HOUSING units, 9 and Muscoy Sts., SAN BERNARDINO, CALIF. Housing Auth. of San Bernardino Co., 440 Crestview St., San Bernardino, Calif. Bids June 19. J. Dewey Hurnish, 222 W. "B" St., Ontario, Arcit.

▲ **Joseph L. Barnes**, 750 Folsom St., San Francisco, Calif. Low Bidder, **$1,285,891**, Project 5, Sunset Elementary "A" SCHOOL, SAN FRANCISCO, CALIF. Dpt. P. Wks., City Hall, San Francisco, Calif. Bids June 22. CD 6/6.

† **Martinelli Constr. Co.**, 1580 Folsom St., San Francisco, Calif. Low Bidder, **$522,788** addnl FACILITIES BLDG. 351-A, U. S. Naval Radiological Defense Laboratory at San Francisco Naval Shipyard, SAN FRANCISCO, CALIF. Twelfth Naval Dist., Federal Office Bldg., San Francisco, Calif. Bids June 27. CD 6/14.

▲ **J. L. Barnes**, 750 Folsom St., San Francisco, Contract Awarded, **$1,285,891**, Project 5, Sunset Elementary SCHOOL, SAN FRANCISCO, CALIF. Dpt. P. Wks., City Hall, San Francisco, Calif. Bids June 22, awarded June 29. CD 7/3, under LB.

ALASKA

BIDS ASKED—HEAVY CONSTRUCTION

† **Alaska, Haines**—PORT FACILITIES—B.A. 7/25—U. S. Eng., New Washington Hotel, Seattle 1, Wash., expansion port facilities, Phase 2, incl. all underground utilities, etc. Inv. S95-507-51-116. Plans deposit $50.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲† **S. Birch & Sons**, et al, Central Bldg., Seattle 4, Wash. Low Bidder, **$2,129,277**, est. $2,635,236, outside utilities, Inv. No. S95-507-51-115, Elmendorf Air Force Base, ALASKA. U. S. Eng., New Washington Hotel, Seattle 1, Wash. Bids June 27. CD 5/31.

▲† **C. F. Lytle, Green Constr. Co., S. Birch & Sons and J. C. Boespflug**, Anchorage, Alaska. Low Bidder, **$3,936,000**, est. $3,336,367, outside utilities, Army construction area, Inv. No. S95-507-51-66, Eielson Air Force Base, ALASKA. U. S. Eng., New Washington Hotel, Seattle 1, Wash. Bids June 26. CD 5/18.

▲† **Haddock Engineers Ltd., & Assoc., Securities Bldg.**, Seattle 1, Wash. Low Bidder, **$1,714,000**, est. $1,480,480, outside utilities, Inv. No. S95-507-51-113, WHITTIER, ALASKA. U. S. Eng., New Washington Hotel, Seattle 1, Wash. Bids June 27. CD 5/31.

BUILDINGS

LOW BIDS AND CONTRACTS

L. E. Baldwin, Inc., 1103 N. 36 St., Seattle, Wash. Contract Awarded, **$767,000**, est. $600,000. 50 HOUSING units in 2 story frame bldgs., DOUGLAS, ALASKA. Alaska Housing Auth., Anchorage, Alaska. Bids June 12. CD 6/21, under LB.

▲† **J. C. Boespflug Constr. Co. and S. Birch & Sons**, 1912 4 Ave. S., Seattle, Wash. Low Bidder. **$1,495,899**, est. $1,284,822, LAUNDRY, DRY CLEANING PLANT, INV. No. S95-507-51-107, FORT RICHARDSON, ALASKA. U. S. Eng., New Washington Hotel, Seattle 1, Wash. Bids June 28. CD 6/7.

▲† **Haddock Engineers, Ltd. & Assocs.**, Securities Bldg., Seattle 1, Wash. Low Bidder, **$3,232,000**, est. $3,952,096, NCO FAMILY QUARTERS, Inv. No. S95-507-51-118, WHITTIER, ALASKA. U. S. Eng., New Washington Hotel, Seattle 1, Wash. Bids June 27. CD 5/31.

CANADA

BIDS ASKED—HEAVY CONSTRUCTION

▲ **Ont., Ottawa**—HOUSES, etc.—B.A. 7/17—S. M. Connolly, engr. Defence Constr. Ltd., 441 Queen's Quay W., Toronto 2B, Ont. 130 houses with basements, No. 1/51 Approx. $1,000,000; sewage pumping station, sewers, water mains and laterals to service 130 houses at R.C.A.F. Station, Uplands. Approx. $200,000. Plans deposit $50 each. CD 5/7.

▲ **Ont., New Toronto**—B.A. 7/23—A. H. R. Thomas, secy. New Toronto Public Utilities Comn., New Toronto, filtration plant, on Lakeshore Rd. incl. rapid sand filters, 15 m.g.p.d. linked with Etobicoke mains by 24 in. water main to be laid on LB St. Approx. $1,500,000. R. W. Angus, University of Toronto, Campus, Toronto, engr. CD 6/2/50.

BIDS ASKED—BUILDINGS

N. S., New Glasgow—SCHOOL—B.A. 7/25—M. Wadden, Town Hall, high school, for Municipality. $500,000. Plans deposit $100. J. L. Darby, Bedford, archt. CD 10/4/50.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

Tomlinson Brothers Ltd., 613 Public Utilities Bldg., Port Arthur, Tex. Contract Awarded, $559,650, asph. paving streets, PORT ARTHUR, ONT. City, A. H. Evans, clk., Port Arthur, Tex. S. E. Flook, c/o owner, engr. CD 6/18.

▲ **Bird Constr. Co. Ltd.**, 7 and Smith Sts., Regina, Sask. Contract Awarded. Approx. $1,000,000, 6,200 x 200 ft. runway at airport, REGINA, SASK. Dpt. Transport, Ottawa, Ont. Bids May 23. CD 5/16.

BUILDINGS

LOW BIDS AND CONTRACTS

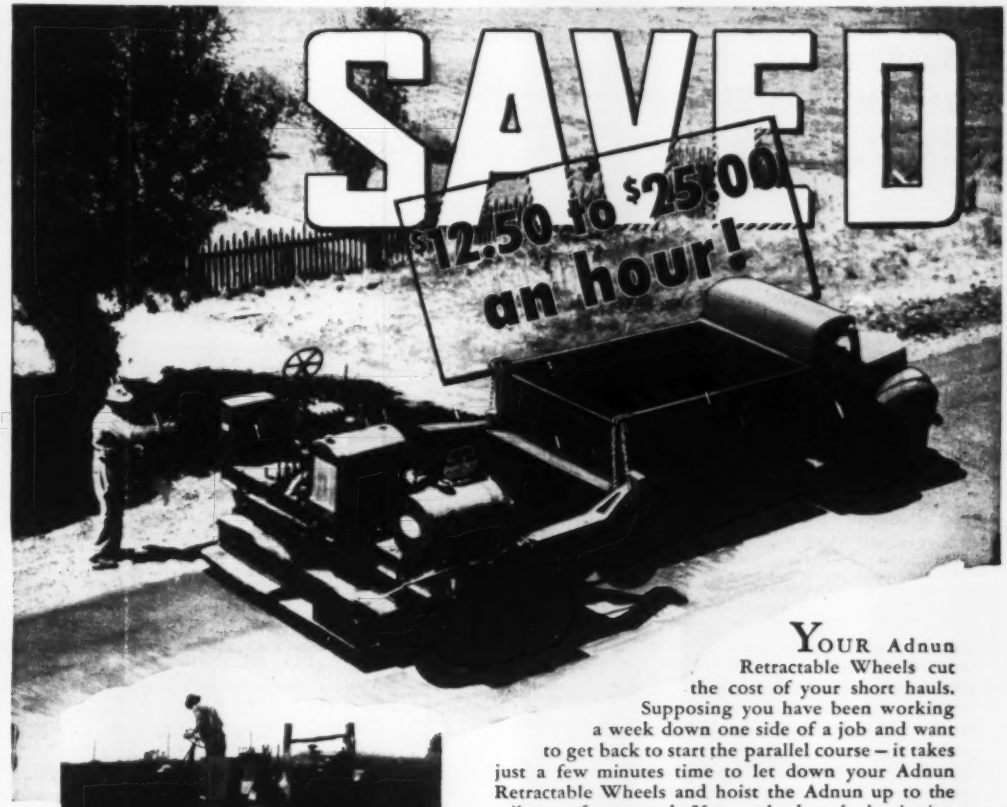
▲ **Burns & Dutton Concrete & Constr. Co. Ltd.**, 5440 First St. W., Calgary, Alta. Contract Awarded, **$6,000,000** two reinf. concrete ordnance WAREHOUSES, EDMONTON, ALTA. Defence Constr. Ltd., Kensington Bldg., Winnipeg, Man. Bids June 5, awarded June 27. CD 5/25.

Continental Constr. Co. Ltd., 815 W. Hasting St., Vancouver, B. C. Contract Awarded, **$565,935**, 52-bed 3 story T-shaped, rein.-con. HOSPITAL, ABBOTSFORD, B. C. Matsqui-Sumas-Abbotsford General Hospital, Abbotsford, B. C. Bids May 10, awarded June 26. CD 5/31, upder LB.

▲ **Hyatt Brothers Ltd.**, 290 Egerton St., London, Ont. Low Bidder. **$2,427,000**, 6 story, 46x124 ft. HOSPITAL WING, LONDON, ONT. Victoria Hospital Trust, Wm. Loveday, chn., London, Ont. Bids May 2. CD 4/3.

SAVED

$12.50 to $25.00 an hour!



Laying a half-inch top course of hot mix.

Rear wheels down and the machine is off to start the parallel course.

YOUR Adnun Retractable Wheels cut the cost of your short hauls. Supposing you have been working a week down one side of a job and want to get back to start the parallel course – it takes just a few minutes time to let down your Adnun Retractable Wheels and hoist the Adnun up to the tail gate of your truck. You are back at the beginning and ready to start on the new course before you could load the ordinary black top spreader on a trailer!

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Add to this feature Adnun versatility of spreading aggregates, Adnun ability to lay a tighter joint for safer roads, lower upkeep costs, freedom from rebuilding and other features that reduce construction costs and increase output. Ask for the booklets, "11 Basic Things..." and "Roads That Last". They bring out some new thoughts on asphalt paving equipment.

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CRESCENT Scraper buckets are built in five types and fifteen sizes. Pictured above is a 3 cu. yd. size handling heavy excavating.

On thousands of earthmoving jobs, Sauerman Scraper machines equipped with the unique Crescent bottomless bucket, are cutting costs in digging, hauling and dumping almost every kind of material.

A Crescent bucket penetrates tough materials with ease, gets a full load quickly, hauls this load at speed of 400 to 600 f.p.m.—all with economical use of power. Write for Catalog.

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Santa Clara, Cal.	621 Alviso Road

CONSTRUCTION REPORTS - Third Section

NEW ENGLAND

BUILDINGS
LOW BIDS AND CONTRACTS

▲ **Coleman Bros. Corp.**, 40 Central St., Boston, Mass. Low Bidder. $1,790,000. foundations and related work for HOUSING, PHA 2-20, Columbia Point, Dorchester, BOSTON, MASS. Boston Housing Auth., 230 Congress St., Boston, Mass. Bids June 22.

▲ **John Bowen Co., Inc.**, 171 Boston St., Dorchester, Mass. Low Bidder. $3,931,800. 375 unit HOUSING, American Legion Hy., Federal 2-9, at Dorchester, BOSTON, MASS. Boston Housing Auth., 230 Congress St., Boston, Mass. Bids June 22. CD 6/12.

▲ **Platt Constr. Co., Inc.**, 99 First St., Cambridge, Mass. Low Bidder. $3,007,020 PHA 6-3, HOUSING off Locust St., FALL RIVER, MASS. Fall River Housing Auth., 151 Sunset Hill, Fall River, Mass. Bids June 22. CD 6/7.

▲ **Malden Housing Auth.**, 90 Plainfield Ave., Malden, Mass. rejected bids June 12, 250 unit HOUSING, PHA 22-1, near Everett Line, MALDEN, MASS. L. B. $2,938,800. CD 6/21, under LB.

▲ **E. J. Cross Co.**, 150 Prescott St., Worcester, Mass. Contract Awarded, $1,500,000. FACTORY addn., WORCESTER, MASS., Heald Machine Co., 10 New Bond St., Worcester, Mass.

MIDDLE ATLANTIC

HEAVY CONSTRUCTION
LOW BIDS AND CONTRACTS

▲† **Merritt-Chapman & Scott Corp.**, 17 Battery Pl., New York 4, N. Y. Contract Awarded, $4,126,251. addnl. facilities at Air Force Base, SAMPSON, N. Y. U. S. Eng., 80 Lafayette St., New York 13, N. Y. Bids June 22. CD 6/27, under LB.

BUILDINGS
LOW BIDS AND CONTRACTS

▲ **Hegeman-Harris Co.**, 220 E. 42 St., New York 18, N. Y. Contract Awarded, $2,000,000 3 story GARAGE, STORE, and OFFICE, bldg., Avenue of Americas between 43 and 44 Sts., NEW YORK, N. Y. Sixth Avenue Garage Corp. G. A. Horvath, pres., 991 Avenue of Americas, New York 18, N. Y. Kahn & Jacobs, 2 Park Ave., New York 16, N. Y. CD 1/21/48.

▲ **S. S. Silberblatt**, 25 S. 45 St., New York, N. Y., Contract Awarded, $3,416,440. construct East Side AIRLINES TERMINAL and PUBLIC PARKING GARAGE, 37 to 38 Sts., First Ave., Manhattan Boro, NEW YORK, N. Y. Triborough Bridge & Tunnel Auth., at office of the Authority's Admin. Bldg., Randall's Island, New York 35, N. Y. Bids May 22. CD 5/24, under LB.

SOUTH

BUILDINGS
LOW BIDS AND CONTRACTS

▲† **Austin Co.**, 16112 Euclid Ave., Cleveland, O. Contract Awarded, $3,500,000, PLANT addns., LOUISVILLE, KY. U. S. Naval Ordnance Plant, Louisville, Ky. Awarded July 3.

▲† **Robert E. Maxey Constr. Co.**, Lubbock, Tex., Contract Awarded, $1,751,817, model SHOP, LABORATORY Bldg., TULLAHOMA, TENN. U. S. Eng., Tullahoma, Tenn. CD 7/27/50.

MIDDLE WEST

BUILDINGS
LOW BIDS AND CONTRACTS

▲ **Corbetta Constr. Co.**, 2085 Prince St., New York, N. Y. Contract Awarded, $2,250,000, construct, manage and finance, 240 RESIDENTIAL UNITS near GREAT LAKES, ILL. Forrestal Village, Greenebaun Inv. Co., sponsors, for Ninth Naval Dist., Naval Training Center, Great Lakes, Ill. Shaw, Metz & Dolio, 208 S. La Salle St., Chicago 4, Ill., archts. Awarded June 16.

WEST OF MISSISSIPPI

BIDS ASKED—BUILDINGS

▲ **Neb., Omaha**—STORAGE—Bids Asked—Continental Freezer Co., c/o A. Epzstein & Sons, Inc., archts., 2011 Pershing Rd., Chicago 9, Ill., 1 story annex freezer commercial storage, $1,500,000.

HEAVY CONSTRUCTION
LOW BIDS AND CONTRACTS

▲ **H. B. Deal & Co., Inc.**, 5517 Manchester Ave., St. Louis 10, Mo., Contract Awarded, Approx. $3,000,000. bridge type overpasses across 18 St. and Clark Ave. to house belt conveyors carrying mail from main post office to Union Station and to Railway Express Agency Bldg. on Clark Ave. east of 18 St. $400,000, 1 story, 247x420 ft. steel, concrete sheet siding main handling train shed, at 1700 Clark Ave. over portion of 16 St. team yard and remodeling part of express Agency Bldg., Clark Ave. east of 18 St. ST. LOUIS, MO. Terminal Railroad Assn. of St. Louis, Armstrong Chinn, pres., 1800 Market St., St. Louis 3, Mo. CD 6/1.

▲† **Westinghouse Electric Corp.**, 117 N. 13 St., Omaha, Neb. Contract Awarded, $3,970,261. furnish, install remaining 4 generators for Fort Randall Dam and Reservoir Proj., Inv. 115, near Lake Andes, SOUTH DAKOTA. U. S. Eng., 1709 Jackson St., Omaha, Neb. Bids June 6. CD 5/24/44.

▲† **Western Contg. Corp.**, 400 Benson Bldg., Sioux City, Ia. Contract Awarded, $4,500,000, concrete apron, drainage at Wichita Air Force Base, INV. KCM-17, WICHITA, KAN. U. S. Eng., Davidson Bldg., Kansas City, Mo. Bids June 28. CD 6/22.

▲† **McKenzie Constr. Co.**, Box 806, San Antonio, Tex. Contract Awarded, $2,076,600, est. $1,836,000. communications maintenance bldg., 120,000 sq. ft., structural steel with insulated metal siding, air-conditioning, with boiler plant for heating, Inv. No. Eng 41-243-51-84, KELLY FIELD, TEX., U. S. Eng., 606 Santa Fe Bldg., Galveston, Tex. Bids June 29, awarded July 2. CD 7/6, under LB.

BUILDINGS
LOW BIDS AND CONTRACTS

▲ **W. R. Grimshaw Co.**, K.O.M.E. Bldg., Tulsa, Okla. Contract Awarded, $5,866,000, St. Vincent's HOSPITAL, LITTLE ROCK, ARK. Sisters of Charity, 1000 High St., Little Rock, Ark. Bids June 19. CD 6/28, under LB.

▲† **Nathan Wohlfeld**, Box 7084, Love Field Branch, Dallas, Tex. Contract Awarded, $2,778,453, est. $2,200,000. eight 3 story 225-man masonry BARRACKS, Inv. No. Eng 41-245-51-69, FORT HOOD, TEX. U. S. Eng., 606 Santa Fe Bldg., Galveston, Tex. Bids June 27, awarded July 2. CD 7/5, under LB.

▲† **Robert E. McKee**, P. O. Box 1706, Santa Fe, N. M. Contract Awarded, $1,357,000, est. $1,679,026. 70,000 sq. ft. SHOP, 1 STOCK BLDG., 4,800 sq. ft., reinf. con. blacktop roads and parking areas, Inv. No. 291-51-129, LOS ALAMOS, N. M., U. S. Atomic Energy Comn., Los Alamos, N. M. Bids June 28, awarded July 2. CD 7/6, under LB.

FAR WEST

HEAVY CONSTRUCTION
LOW BIDS AND CONTRACTS

▲† **F. C. Scott and Hatfield Welding**, 11032 S. E. Powell St., Portland, Ore. Low Bidder, $208,410, bank protection works and channel imprvs., Row River and Coast Fork of Willamette River, CIVENG 35-026-51-294, Lane Co., OREGON. U. S. Eng., Pittock Block, Portland, Ore. Bids June 21. CD 5/16.

▲ **CALIFORNIA**—State Div. Hys., 120 S. Spring St., Los Angeles.

Griffith Co., 1060 S. Broadway, Los Angeles, Calif., Contract Awarded, $1,303,598, roadwork, etc. 0.9 mi. Ramona Freeway in Alhambra between Hellman Ave. and 8 St., Los Angeles Co. Bids June 7, awarded June 29. CD 6/14, under LB.

▲† **Monson Bros.**, 475 6 St., San Francisco, Calif., Low Bidder, $2,760,000, Engine overhauling bldg. at U. S. Naval Air Station, NOY 27951, Spec. 29624.

BUILDINGS
LOW BIDS AND CONTRACTS

▲ **Moore & Roberts**, 693 Mission St., San Francisco, Calif. **Elmer J. Freethy**, 1432 Kearny St., El Cerrito, Calif., Contract Awarded, $1,297,000, 176-unit HOUSING, Cal 11-5 PITTSBURG, CALIF. Housing Auth. of Contra Costa Co. 700 D. St., Martinez, Calif. Bids June 21, awarded June 30 CD 7/2, under LB.

CANADA

BUILDINGS
LOW BIDS AND CONTRACTS

▲ **Kitimat Constructors Ltd.**, 1275 Melville St., Vancouver, B. C. Contract Awarded, $50,000,000, complete townsite, smelter, docks and harbor dredging at new aluminum development site, in central B. C., KITIMAT, B. C. Aluminum Co. of Canada Ltd., Sun Life Bldg., Montreal, Que. Awarded July 3.

▲ **Dominion Constr. Co. Ltd.**, 150 W. First Ave., Vancouver, B. C. Contract Awarded, $16,000,000, MILL and WAREHOUSE expansion at Harmac Mill, NANAIMO, B. C., H. R. MacMillan Export Co. Ltd., 837 W. Hastings St., Vancouver, B. C. Awarded June 30. H. A. Simons, 16 E. Hastings St., Vancouver, B. C., engr. CD 4/27.

▲ **Northern Constr. Co. and J. W. Stewart Ltd.**, 1304 Hornby St., Vancouver, B. C. Contract Awarded, $30,000,000. mine power development power plant and dam on Columbia River 11 mi. from Trail, WANETA, B. C. Consolidated Mining & Smelting Co. of Canada Ltd., Trail, B. C. Stone & Webster Canada Ltd., 44 King St. W., Toronto, Ont., engr. Awarded July 3.

Proposal advertisements see pp. 97-100

OFFICIAL PROPOSALS

Bids: August 9, 1951

The Delaware Memorial Bridge

CONTRACT NO. 9—FENDERS

Sealed proposals for construction of the Fenders and the repair of the damaged granite facing of the east tower pier for "The Delaware Memorial Bridge" over the Delaware River near Wilmington, Delaware, will be received by the Delaware State Highway Department at the office of the Director, Delaware Crossing Division, Continental American Building, Wilmington, Delaware, until 11 o'clock Eastern Standard Time (12 o'clock Eastern Daylight Saving Time), August 9, 1951, at which time and place said proposals will be publicly opened and read.

The work involves the following principal quantities:

Lump Sum	Repair of Pier C Granite Facing
450,000 lbs.	Structural Steel
220 m.b.m.	Creosoted Timber
1,200 lin. ft.	⅜" Wire Rope
60,000 lbs.	Hardware

Performance of the Contract shall begin as promptly after execution of the contract as work on the other contracts of this project will permit and shall be completed on or before May 1, 1952.

Monthly payments will be made for ninety (90) per cent of the construction completed each month.

Bidders must submit proposals upon forms furnished by the Department.

Each proposal must be accompanied by an acceptable surety bond or certified check for a sum equal to at least ten (10) per cent of the total amount of the proposal.

The Contract will be awarded or proposals rejected within thirty (30) days from the date of opening proposals. The right is reserved to reject any or all bids.

One set of the Plans and two copies of the Specifications may be obtained from the Consulting Engineers, Howard, Needles, Tammen & Bergendoff, 55 Liberty Street, New York 5, N. Y., after July 12, 1951, upon payment of $10.00.

Any prospective bidder who has made such a deposit may secure extra blue print copies of the plans upon payment of 50¢ per drawing and an extra copy of the Specifications upon payment of $2.50 per copy.

Plans and Specifications need not be returned to the Engineers, and the above payments will not be refunded.

The Plans and Specifications and other contract documents may be examined at the office of the Director, Delaware Crossing Division, Continental American Life Insurance Building, Wilmington, Delaware, or at the office of the Engineers, Howard, Needles, Tammen & Bergendoff.

State Highway Department
J. Gordon Smith, Chairman
W. A. McWilliams, Director
Delaware Crossing Division
Wilmington, Delaware
July 2, 1951.

Bids: July 24, 1951

STATE OF NEW JERSEY
STATE HIGHWAY DEPARTMENT
TRENTON

NOTICE IS HEREBY GIVEN that sealed bids will be received by the State Highway Commissioner for:

ROUTE 29, SECTION 7B, BRIDGES
Construction of bridges at Ross Brook, Cuckels Brook and Middle Brook, on Route 29, Section 7B, Bridgewater Township, Somerset County, Federal Project No. IR-178(9). The principal items of construction are:

Estimated:
1,333 cu. yds. Concrete in Structures
60,960 lbs. Reinforcement Steel in Structures
108,300 lbs. Structural Steel
1,463 sq. yds. Stream Bed Pavement
23 tons Pavement, Type MABC-1

Bids for the above will be received at the office of the State Highway Department, Assembly Room, Room 140, in the State Highway Office Building, 1035 Parkway Avenue, Trenton, N. J. on Tuesday, July 24, 1951, at ten o'clock (10:00 A.M.—EASTERN STANDARD TIME), eleven o'clock (11:00 A.M.—DAYLIGHT SAVING TIME), and will be opened and read immediately thereafter.

The receipt and opening of bids is subject to the proper qualification of the bidder in accordance with the provisions of the prequalification law and the regulations adopted by the State Highway Commissioner. Bidders must also submit a revised financial statement and statement of plant and equipment with their bid.

NOTE: The proposed project is a "Federal Aid Project" authorized by the provisions of Title 23 of the Revised Statutes of New Jersey and supplements and by P. L. 769, Section 1, 81st Congress, and is to be performed in accordance with the special provisions and requirements of the Bureau of Public Roads, Department of Commerce, as outlined in the specifications, which provisions require that labor be employed from lists furnished by the State Employment Service, 149 West Main Street, Somerville, N. J. The attention of bidders is directed to the special provisions covering subletting or assigning the contract. The minimum wage paid to all common labor employed on this contract shall be $.75 per hour. The minimum wage paid to all intermediate grade of labor employed on this contract shall be $1.00 per hour. The minimum wage paid to all skilled labor employed on this contract shall be $1.50 per hour.

Drawings, specifications and form of bid, contract and bond for the proposed work are on file in the office of the State Highway Department, Trenton, N. J., and may be inspected by prospective bidders during office hours. Plans will be furnished on a deposit of Ten Dollars ($10.00) for each set of plans upon application to A. Lee Grover, Chief Clerk, State Highway Department, Room 139, State Highway Office Building, 1035 Parkway Avenue, Trenton, N. J. Bids must be made upon the standard proposal forms in the manner designated in the standard State Highway specifications and must be enclosed in sealed special addressed envelopes bearing the name and address of the bidder and work bid upon on the outside, and must be accompanied by a certified check drawn to the order of the Treasurer of the State of New Jersey for not less than ten percent (10%) of the amount of the bid, provided that the said certified check shall not be less than $500.00 nor more than $20,000 and must be delivered at the above place on or before the hour named. Copies of the standard proposal forms and special addressed envelopes will be furnished on application. Bids not enclosed in sealed special addressed envelopes will be considered informal and will not be opened. The right is reserved to reject any or all bids.

Signed: R. J. Abbott
State Highway Commissioner

Bids: July 31, 1951

Heating and Ventilating Equipment

CONTRACT 327

SEALED BIDS will be received by the Board of Water Supply, at its offices, thirteenth floor, 120 Wall Street, New York City, until 10:00 A. M., Eastern Standard Time, on Tuesday, July 31, 1951, for Contract 327, for furnishing, delivering, installing and testing heating, ventilating and appurtenant equipment for the Roundout, West Branch and Kensico South effluent chambers, and heating equipment with appurtenances for the drainage chamber at Shaft 13, the coagulating plant at Shafts 17 and the Kensico comfort station, and for performing appurtenant miscellaneous construction, all as set forth in the specifications. The locations of the proposed work are in the Towns of Wawarsing, Ulster county, Carmel, Putnam county and Bedford, North Castle and Mount Pleasant, Westchester county, New York.

No bid will be received and deposited unless accompanied by a certified check upon a National or State bank, drawn and made payable to the order of the Comptroller of The City of New York, in the amount of ten thousand dollars ($10,000.00), for the proper execution of the contract.

At the above place and time the bids will be publicly opened and read. Pamphlets containing information for bidders, forms of bid and contract, specifications, contract drawings, requirements as to surety, etc., can be obtained in Room 1311, at the above address, upon application in person or by mail, by depositing the sum of five dollars ($5.00) in cash or its equivalent for each pamphlet. Within 30 days following the award of contract or rejection of bids, the full amount of such deposit will be refunded for each pamphlet submitted as a bid and a refund of four dollars ($4.00) will be made for each other pamphlet returned in acceptable condition. Arrangements will be made whereby prospective bidders desiring blueprints of the contract drawings for their own use may secure same, the cost thereof to be paid by them. For further particulars, apply at the office of the Chief Engineer at the above address.

IRVING V. A. HUIE, President, RUFUS E. McGAHEN, Commissioners, Board of Water Supply; RICHARD H. BURKE, Secretary.

Bids: August 1, 1951

Foundations for Passenger Terminal

THE PORT OF NEW YORK AUTHORITY
NEWARK AIRPORT
CONTRACT NA-170.034

Sealed proposals for the construction of foundations for the Passenger Terminal at Newark Airport will be received at the office of the Chief Engineer of The Port of New York Authority, Room 1100, 111 8th Ave., New York 11, until 2:00 P.M. Wednesday, August 1, 1951, and thereafter in the Auditorium of the Authority at the same address until 2:30 P.M., on the same date, at which latter time and place said proposals will be publicly opened and read.

Contract documents may be seen at the office of the Chief Engineer and copies will be furnished upon deposit of $10 per set. The deposit will be remitted if the documents are returned in good condition, not later than 30 days after the opening of proposals.

THE PORT OF NEW YORK AUTHORITY
Howard S. Cullman, Chairman
New York, July 12, 1951

U. S. Government

General Services Administration, Public Buildings Service, Washington, D. C., June 28, 1951.—Sealed bids in duplicate for the Extension and Remodeling of the Terminal Annex (Operation No. 1) at Los Angeles, California, will be received until 1:00 P.M., Standard Time, on July 26, 1951, in Room No. G-341-B, General Services Building, Washington, D. C., and then publicly opened in Room No. G-341-D. Bid guarantee is required. If the amount of the contract exceeds $2000, U. S. Standard Form No. 23, Construction Contract, will be used and performance and payment bonds will be required. Upon request one set of Prebid Documents and Two sets of drawings and specifications will be supplied without charge to each general contractor interested in bidding on the complete project, all of which must be returned. Not more than six additional sets of drawings and specifications may be obtained by general contractors at a charge of $20.00 per set, which will be refunded for each set returned in good condition within 15 days after the bids are opened. Checks offered as payment must be made payable to the order of the Treasurer, U. S. Upon request and in the discretion of the undersigned one set of drawings and specifications will be furnished to builders' exchanges, chambers of commerce and other similar organizations, with the understanding that the set will be retained on their premises and made available for inspection by any interested subcontractor or material firm. Bidding material may be obtained at Room No. 1304, General Services Building, 19th and F Streets, N. W., Washington 25, D. C., Phone EXecutive 4900, Extension 2397. W. E. Reynolds, Commissioner of Public Buildings Service, General Services Administration.

Contractors Watch This Section —

for new projects. Publish your announcements through the proposal sections of *Engineering News-Record* and get their bids.

OFFICIAL PROPOSALS

Bids: August 1, 1951
Revised Bid Date

Senior High School

FOR BOARD OF EDUCATION
SYRACUSE, N. Y.

Sealed Proposals Will be Received at the office of the Commissioner of Contract and Purchase of the City of Syracuse, New York, 218 City Hall, Syracuse, New York, on August 1, 1951, until 1:30 p.m., Eastern Daylight Saving Time. On the same day and immediately thereafter, the sealed Proposals will be opened and publicly read by the Commissioner of Contract and Purchase, of the City of Syracuse, New York, 218 City Hall, Syracuse, New York.

The sealed Proposals are to be for:
Contract No. 1—General Construction
Contract No. 2—Electric
Contract No. 3—Plumbing
Contract No. 4—Heating
Contract No. 5—Sound System
Contract No. 7—Ventilation

For the William Nottingham High School (previously called East Side High School), located in the 3000-3100 block of East Genesee Street in the City of Syracuse, New York.

A certified check for $100.00 dollars or currency for each set of plans and specifications will be required by the Commissioner of Contract and Purchase from prospective bidders. The certified check or cash will be held by the Commissioner of Contract and Purchase, and, upon the return of the drawings and specifications, will be returned to the bidder.

Structural steel for the building has been let previously and is designated as Contract #6.

Bids: August 2, 1951

Construction of Group Camps

Sealed bids will be received by the Palisades Interstate Park Commission until 3:00 P.M., Eastern Daylight Saving Time, August 2, 1951, for the construction of Group Camps in the Twin Lakes Section of Harriman State Park, Orange County, New York.
Full information, plans, specifications and proposals may be secured at Administration Headquarters, Palisades Interstate Park Commission, Bear Mountain, N. Y. Payment for plans is $20.00.
THE COMMISSION RESERVES THE RIGHT TO REJECT ANY OR ALL BIDS RECEIVED.

U. S. Government

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF RECLAMATION

NOTICE IS HEREBY GIVEN that sealed bids on Specifications No. 7036-202 for furnishing labor and materials and performing all work for the construction of Sinclair Substation, Transmission Division, Wyoming, Missouri River Basin Project, will be mailed to P. O. Box 280, Casper, Wyoming, or delivered to the office of the Bureau of Reclamation in time for the public opening at 10 a.m., Mountain Standard Time, July 19, 1951, at the office of the Bureau of Reclamation, Reclamation Center, Casper, Wyoming.

Copies of the standard forms and of the specifications may be obtained from the following offices of the Bureau of Reclamation: Avery A. Batson, Regional Director, 318 New Customhouse, Denver 2, Colorado; and I. J. Matthews, District Manager, P. O. Box 280, Casper, Wyoming. No charge for copies of the specifications and drawings furnished for bidding purposes; for all others $0.75 per copy, not refundable. Payments should be made by check or money order payable to the Treasurer of the United States.

"Opportunity" Advertising:
Think
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First

OFFICIAL PROPOSALS

Bids: July 25, 1951

State Road Work

NOTICE TO CONTRACTORS: STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.—Pursuant to the provisions of the Highway Law, and special provisions for projects financed with federal aid funds, sealed proposals will be received until thirty o'clock A.M., advanced standard time, which is nine-thirty o'clock A.M., eastern standard time on Wednesday, July 25, 1951 by Henry A. Cohen, Director, Bureau of Contracts & Accounts, 14th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y., for the following projects: Maps, plans, specifications and proposal forms may be seen and obtained at the office of the State Department of Public Works, Bureau of Contracts & Accounts, Albany, N. Y., and at the office of the District Engineers noted below, and may also be seen at the office of the State Department of Public Works, 270 Broadway, New York City.

The deposit for plans and proposal forms for each contract is indicated below. A refund will be made in full to bidders for the return of one set in good condition within 30 days of award or rejection of bids; refund for all other sets in good condition, similar period, will be 50% of deposit.

County	Contract No.	Name	Miles	Type	Deposit	Estimated Cost of Work
		DISTRICT No. 1				
		G. L. Nickerson, Dist. Engr., 353 Broadway, Albany, N. Y.				
Albany	FARC51-56	Slingerlands-Albany, S. H. 5237 Proj. F392-9)	2.04	Asp. Conc. Type 1A, Opt.	$3,000 Plans $10	$54,000
Albany	FARC51-52	Albany-Bethlehem Center, S. H. 5499 Proj. F435-5	1.16	Asp. Conc. Type 1A, Opt.	$1,500 Plans $10	$27,000
Rensselaer	FC51-1	Hoosick Falls Village John & Water Streets	0.03	2 Reinf. Conc. Deck Slab	5% of Bid Plans $10	$11,501.50
Schenectady	FGRC51-46	Sep. of Grades of the NYC RR with Wyatts-Hoffman, S. H. 5410 Proj. FG340-9)	0.99	9" Cem. Conc. Pavt. 2 at 24' Wide — 0.91 Mi. Misc. Work — 0.08 Mi. RR Sep. 2 Span Alpha I-Beam 167' Tot. Alpha Royalty $470.00	$50,000 Plans $15	$976,000
		DISTRICT No. 2				
Oneida	FARC51-47	L. Ketchum, Dist. Engr., 109 No. Genesee St., Utica, N. Y. Marcy Hill-Trenton, S. H. 931 Remsen-Boonville Town Line, S. H. 5346 Boonville Town Line-McKeever, S. H. 5248 Proj. F752-4); F321-6) & F743-3)	7.96	Landscaping	$1,600 Plans $10	$29,000
		DISTRICT No. 3				
		Wm. Robinson, Dist. Engr., Welch Lock Bldg., Syracuse, N. Y.				
Cayuga	FARC51-36 FASSH151-5	Victory-Red Creek, Pt. 1, S. H. 8048 Victory-Cato, S. H. 1174 Victory-Cato, Pt. 1 Proj. S115-2	5.46	9" Cem. Conc. Pavt. 20' 40' 50' Wide — 5.42 Miles Misc. Work — 0.04 Mi. Conc. Twin Box 13' Ea. Span	$55,000 Plans $10	$924,000
Onondaga	MT51-2	New York State Thruway, Mohawk Section MT50-2P	.....	Relocating Power Transmission Lines	$400 Plans $10	$7,000
		DISTRICT No. 4				
		A. R. Mulligan, Dist. Engr., Barge Canal Terminal, Rochester, N. Y.				
Genesee, Monroe & Wyoming	FARC51-48	Elba-Byron, Pts. 1 & 2, S. H. 48-14, S. H. 48-13 Attica-Batavia, Pt. 1, S. H. 8022 Attica Village: Market and Main Streets, S. H. 9224 Ridge, Pts. 1, 2, 3, & 4, S. H. 6-165-256-257 Proj. S235-3); F44-3); F602-3); F&I 402-7	18.80	Landscaping	$1,000 Plans $10	$18,000
Livingston	FARC51-45	Dansville-Mt. Morris, Pts. 1 & 2, S. H. 714-715 Proj. No. S130-1)	9.56	Asp. Conc. Type 1A, Opt. 3 Span Plate Girder 304'-92" Tot. 40' I-Beam; 25' Conc. Slab; 21'-5½" Conc. Slab	$88,000 Plans $50	$1,616,000
Ontario	FARC51-49 OT51-5	Dresden-Geneva, Pt. 2, S. H. 1704 New York State Thruway Ontario Sec. "K" & "L" Proj. F505-6)	11.31	Landscaping	$1,800 Plans $15	$32,000
		DISTRICT No. 5				
Erie	FARC51-54	C. R. Waters, Dist. Engr., 65 Court Street, Buffalo, N. Y. Southwestern Boulevard, S. H. 9269 Proj. F1079-2)	3.71	Asp. Conc. Type 1A, Opt.	$17,000 Plans $10	$300,000
		DISTRICT No. 6				
Tioga	PSC7688 & 8145	H. F. Brumm, Dist. Engr., 30 W. Main St., Hornell, N. Y. North Avenue Underpass Grade Crossing Elim. of Owego-Candor, Pt. 1, S. H. 5420 & Erie RR	0.31	Drainage Structures & Leaching Area	$1,500 Plans $10	$27,000
		DISTRICT No. 8				
		J. S. Bixby, Dist. Engr., Pleasant Valley Road, Poughkeepsie, N. Y.				
Putnam	FAS SH51-6	Kent Cliffs-Carmel Proj 8534-1)	1.70	Rd. Mac. Type 1, Pen. Method 51'-4" I-Beam	$22,000 Plans $15	$401,000
Ulster & Greene	CT 51-2	New York State Thruway- Catskill Section Catskill Thruway, CT48-1: Saugerties-Greene Co. Line, CT46-1: Ulster Co. Line-Brick School-House Road, CT46-2 Brick Schoolhouse Rd., SHS231, CT46-3	8.61 8.61	Calcium Chloride Tr. Gravel Shoulders	$6,000 Plans $10	$108,000
		DISTRICT No. 9				
		F. W. Donovan, Dist. Engr., 71 Frederick St., Binghamton, N. Y.				
Broome	FAC51-5 FARC51-50	Binghamton City: Court St., FAC48-7 Vestal, S. H. 420; Park Bridge, S. H. 127 and Binghamton-Windsor, Pt. 2, S. H. 5022 Proj. A401-8; C344-17	2.34	Landscaping	$1,000 Plans $10	$18,000
Chenango	FAS SH51-1 FAS SH51-2P	Bainbridge-Masonville, Pt. 1A, Bainbridge-Masonville, Pt. 1, FAS S. H. 50-15 Proj. S273-3)	0.57	Asph. Conc. Type 1A, Opt. Cantilever Deck Girder Alpha: 3 Spans, 2 at 155' & 1 at 180' Alpha Royalty $405.30	$45,000 Plans $15	$815,000
Chenango	FARC51-55	Oxford Village Bridge: Main, Clinton & Washington Streets S. H. 9293 Oxford-Soldiers Home, S. H. 5623 Proj. S270-1)	0.13	Asp. Conc. Type 1A, Opt. 180' Span Truss	$15,000 Plans $10	$266,000
Delaware	FARC51-53	Andes-Margaretville, S. H. 8017 Proj. F99-4)	5.50	Asp. Conc. Type 1A, Opt.	$15,000 Plans $10	$280,000

(Continued on page 99)

OFFICIAL PROPOSALS
(Continued from page 98)

Special attention of bidders is called to "General Information for Bidders" in the proposal, specification, and contract agreement, and to the special provisions applying to projects financed with federal funds. Award of a contract is subject to the "Controlled Materials Plan" of the National Production Authority as well as to regulations issued thereunder.

Proposal for each contract must be submitted in a separate sealed envelope with the name and number of the contract plainly endorsed on the outside of the envelope. Each proposal must be accompanied by draft or certified check payable to the order of the "State of New York, Commissioner of Taxation and Finance" for the sum as specified in the advertisement and the proposal. The retention and disposal of the bidding check, the execution of the contract and bonds shall conform to the provisions of the Highway Law, as set forth in "Instructions to Bidders."
When optional types are permitted on contracts with federal funds, bidders must state in the space provided in the proposal the exact designation of the optional type upon which the proposal is predicated.
The right is reserved to reject any or all bids.

B. D. TALLAMY
Supt. of Public Works

Bids: August 9, 1951

Construction of Sanitary Sewers and Appurtenances

COLUMBIA MUNICIPAL AUTHORITY
COLUMBIA, PENNSYLVANIA

Sealed proposals for the construction of sanitary sewers and appurtenances and a primary sewage treatment plant will be received by the Columbia Municipal Authority until 8:00 P.M., E.D.S.T., Thursday, August 9, 1951, at which time the bids will be publicly opened and immediately read in a meeting of the Authority to be held at the Borough Hall, Columbia, Pennsylvania.
The work will be divided into five contracts and separate proposals will be received for each of the following contracts:
Contract No. 1—General Construction of the Sewage Treatment Plant, including mechanical work.
Contract No. 2—The Plumbing for the Sewage Treatment Plant.
Contract No. 3—The Heating for the Sewage Treatment Plant.
Contract No. 4—The Electrical Work for the Sewage Treatment Plant.
Contract No. 5—Sanitary Sewers and Appurtenances consisting of approximately 8,000 feet of vitrified clay pipe and appurtenances.
Specifications, Proposal Forms, Drawings, and other contract documents may be examined at the office of Glace & Glace, Consulting Engineers, Harrisburg, Pennsylvania, or the office of the Borough, Columbia, Pennsylvania. A complete set of bidding documents, may be obtained at the office of the Engineer or the Borough Clerk, upon depositing $30.00 for the set containing Contracts 1, 2, 3 and 4, or $20.00 for the set containing Contract 5. This full amount will be refunded if a bid is submitted and if the documents are returned in good condition within 10 days after the opening of bids. If the documents are not returned within this period, the deposit will be forfeited. No deposit will be returned to non-bidders.
No bid on any of the construction work will be considered unless it is accompanied by the bidder's certified check drawn upon a solvent bank and made payable to the order of the Columbia Municipal Authority, for the following sums:

Project	Bid Security
Contract No. 1, Sewage Treatment Plant	$25,000
Contract No. 2, Plumbing for Sewage Treatment Plant	1,000
Contract No. 3, Heating for Sewage Treatment Plant	1,000
Contract No. 4, Electrical Work for Sewage Treatment Plant	2,000
Contract No. 5, Sanitary Sewers and Appurtenances	3,000

These sums will serve as bid security and will be forfeited to the Authority as liquidated damages in the event an award is made and the contracts and bonds are not promptly and properly executed as required in the specifications.
No bidder may withdrawn his bid within 30 days after the actual date of the opening. The Columbia Municipal Authority reserves the right to reject any or all bids, to waive any technical defects, and to accept any bid that it may deem to be for the best interests of the Authority.
BY ORDER OF THE COLUMBIA MUNICIPAL AUTHORITY.
T. H. Kain, Secretary

Bids: July 23, 1951

Installation of Branch Meters for Rooms 2004—2042 and Room 2048

THE PORT OF NEW YORK AUTHORITY
PORT AUTHORITY BUS TERMINAL
CONTRACT BT-110.015

Sealed proposals for the installation of branch meters for Rooms 2004-2042 and Room 2048 in the Port Authority Bus Terminal will be received in the office of the Chief Engineer of The Port of New York Authority, Room 1100, 111 8th Ave., New York 11, until 11:30 P.M. Monday, July 23, 1951, at which time and place said proposals will be opened and read.
Contract documents may be seen at the office of the Chief Engineer and copies will be furnished upon deposit of $10 per set. The deposit will be remitted if the documents are returned in good condition, not later than 30 days after the opening of proposals.
THE PORT OF NEW YORK AUTHORITY
Howard S. Cullman, Chairman
New York, July 12, 1951

Bids: July 26, 1951

Conversion of Steam Heating Boiler from Coal-Fired to Oil-Fired—Building #115, Port Newark, N. J.

THE PORT OF NEW YORK AUTHORITY
CONTRACT O & M—133

Sealed proposals for all labor, material and equipment required to convert existing boiler in accordance with The Port of New York Authority Form of Proposal and Specifications, Contract O & M—133 entitled, "Conversion of Steam Heating Boiler from Coal-Fired to Oil-Fired—Building #115, Port Newark, N. J." will be received in the office of the Director of Purchase of The Port of New York Authority, Room 1402, 111 8th Ave., New York 11, until 11:00 A.M. (EDST), Thursday, July 26, 1951, at which time and place proposals will be publicly opened and read.
Contract documents may be obtained upon request at the office of the Director of Purchase.
THE PORT OF NEW YORK AUTHORITY
Howard S. Cullman, Chairman
New York, July 12, 1951

Bids: August 13, 1951

Water Mains

NOTICE TO CONTRACTORS
CONSTRUCTING
WINDERMERE AND LINDEN
EXTENSIONS FOR
GREENWOOD LAKE VILLAGE
ORANGE COUNTY, NEW YORK

Sealed bids for the construction of Windermere and Linden Extensions will be received at the Village Offices, Greenwood Lake, New York, until 7:30 P. M., Eastern Daylight Saving Time, on Aug. 13, 1951, and then at said Village Offices publicly opened and read aloud.
The Information for Bidders, Form of Contract, Plans, Specifications and Form of Performance Bond may be examined at the office of the Village Clerk, Village Offices, Greenwood Lake, New York, and at the office of Keis & Holroyd, Consulting Engineers, 257 Broadway, Troy, New York. Copies thereof may be obtained at the office of Keis & Holroyd upon payment of $25.00 for each set. Any bidder upon returning such set in good condition, will be refunded his payment and any non-bidder upon so returning such set within 30 days after the date for receiving bids, will be refunded $20.00.
The Board of Trustees of the Village of Greenwood Lake, New York, reserves the right to waive any informalities in, or to reject any, or all bids.
A certified check made payable to the order of the Board of Trustees, Village of Greenwood Lake, New York, in the amount of five per centum (5%) of the bid must be deposited by each bidder with his bid as a guarantee that in case the contract is awarded to him, that he will within 5 days thereafter, execute such contract and furnish a satisfactory performance bond. On failure to do so he shall forfeit the deposit as liquidated damages and acceptance of the bid will be contingent upon the fulfillment of this requirement by the Bidder.
The successful bidder will be required to furnish a performance bond satisfactory to the Board of Trustees of the Village of Greenwood Lake, New York, in the amount of the contract, and having as surety thereon such surety company or companies as are acceptable to the Board of Trustees of the Village of Greenwood Lake, New York.
No bidder may withdraw his bid within 30 days after the date set for the opening thereof. Any bid may be withdrawn prior to the above scheduled time for the opening of bids or authorized postponement thereof.
WILLIAM B. PHILLIPS, Village Clerk
Dated: July 2, 1951
Keis & Holroyd
Troy, New York

Bids: August 1, 1951

High Intensity Lighting for Runway 13-31

THE PORT OF NEW YORK AUTHORITY
LA GUARDIA AIRPORT
CONTRACT LGA-220.001

Sealed proposals for the installation of high intensity lighting for Runway 13-31 at La Guardia Airport will be received at the office of the Chief Engineer of The Port of New York Authority, Room 1100, 111 8th Ave., New York 11, until 11:30 A.M. Wednesday, August 1, 1951, at which time and place said proposals will be opened and read.
Contract documents may be seen at the office of the Chief Engineer and copies will be furnished upon deposit of $10 per set. The deposit will be remitted if the documents are returned in good condition, not later than 30 days after the opening of proposals.
THE PORT OF NEW YORK AUTHORITY
Howard S. Cullman, Chairman
New York, July 12, 1951

Bids: August 2, 1951

Demolition & Reconstruction of Bridge & Approaches

SEALED PROPOSALS will be received by the undersigned at his office in the Lehigh County Court House, Allentown, Pa., for the demolition of the present Pine St. Bridge and the construction of a new bridge and approaches thereto leading from Pine St., Catasauqua, Pa., to Pine St., Whitehall Township, Lehigh County, Pa., until 11:00 o'clock A.M. (E.D.S.T.) August 2, 1951, and publicly opened after 11:15 o'clock A.M. (E.D.S.T.) of the same day, in the office of the County Commissioners.
Copies of plans, specifications and proposal forms may be obtained at the office of G. Edwin Pidcock Co., Consulting Engineers, B & B Bldg., 546-48 Hamilton St., Allentown, Pa., upon payment of Fifty Dollars ($50.00) for each set. Any bidder, upon returning such set in good condition within ten (10) days after the opening of proposals will be refunded Twenty-five Dollars ($25.00) of his payment.
Each Bidder must deposit with his proposal, a certified check or Surety Company's Bid Bond in an amount of not less than five (5) percent of the base bid in the form as outlined in the "Instructions to Bidders".
Proposals must be sent in on regular forms prepared by the Consulting Engineers in duplicate, in an envelope properly identified, and in the hands of the County Controller at or before the time above mentioned.
No Bidder may withdraw his proposal within fifteen (15) days after the actual date of the opening thereof.
Acceptance of all proposals will be received subject to Lehigh County receiving authority to commence and authority for allotment of materials for the construction of the said Pine St. Bridge from the Controlled Materials Plan Division of the National Production Authority, Federal Department of Commerce.
The Board of Commissioners of Lehigh County reserves the right to waive any informalities in, or to reject any or all proposals.
ALAN F. WEINSHEIMER,
County Controller

READ THE OFFICIAL PROPOSAL COLUMNS OF ENGINEERING NEWS-RECORD THIS WEEK AND EVERY WEEK

OFFICIAL PROPOSALS

Bids: August 9, 1951

Additional Water Supply For Latham Water District, Colonie, New York

NOTICE TO CONTRACTORS

Sealed bids will be received by the Town Board of the Town of Colonie, New York, on the 9th day of August, 1951, until 7:30 P. M., Eastern Daylight Saving Time, for furnishing all labor, materials and equipment and constructing a filter plant, aerator, pumping station and filtered water reservoir, together with furnishing steel sheet piling and miscellaneous equipment and materials for the project for Additional Water Supply, Stony Creek.

The Information for Bidders, Form of Bid, Form of Contract, Plans, Specifications and Performance Bond may be examined at the office of the Town Clerk, Town Hall, Newtonville, New York, and at the office of Keis & Holroyd, 257 Broadway, Troy, New York. Copies thereof may be obtained at the office of Keis & Holroyd, or from the Town Clerk, upon payment of $25.00 for each set. Any bidder upon returning such set promptly and in good condition, will be refunded his payment, and any non-bidder upon so returning such set will be refunded $20.00.

The Town Board of the Town of Colonie, New York, reserves the right to waive any informalities in or to reject any or all bids.

A certified check made payable to the order of the Town of Colonie, in the amount of Five Per Centum (5%) of the bid must be deposited by each bidder with his bid as a guarantee that in case the contract is awarded to him, that he will, within five (5) days thereafter, execute such contract and furnish a satisfactory performance bond. On failure to do so, he shall forfeit the deposit as liquidated damages and acceptance of the bid will be contingent upon the fulfillment of this requirement by the bidder.

The successful bidder will be required to furnish a performance bond satisfactory to the Town of Colonie, New York, in the amount of the contract, and having as surety thereon, such surety company or companies as are acceptable to the Town of Colonie, New York.

The work will be let in separate contracts as follows:

Section No. 5—General Construction on Filter Plant Building, Grading, Walks, Roads, Etc.

Section No. 5A—Clear Water Well or Filtered Water Storage.

Section No. 5B—Flocculators.

Section No. 5C—Outside Piping at Filter Plant.

Section No. 5D—Installation of Pumps, Motors and Engines.

Section No. 5E—Aerator.

Proposals will also be received on Alternate Plan for Filter Plant as follows:

Section No. 5—Alternate—General Construction on Filter Plant Building, Foundations for Steel Clear Water Well, Grading, Walks, Roads, Etc.

Section No. 5A—Alternate—Steel Tank for Clear Water Well.

Section No. 5B—Alternate—Flocculator or Hydro-Treator.

Section No. 5C—Alternate—Outside Piping at Filter Plant.

Section No. 5D—Alternate—Installation of Pumps, Motors and Engines.

Section No. 6—Filter Plant Equipment, Furnishing and Installing.

Section No. 7—Plumbing at Proposed Filter Plant.

Section No. 8—Heating at Proposed Filter Plant.

Section No. 9—Electrical at Proposed Filter Plant.

Proposals will also be received on Alternate Plan for Filter Plant Equipment, Furnishing and Installing and for Plumbing, Heating and Electrical work as follows:

Section No. 6—Alternate—Filter Plant Equipment, Furnishing and Installing.

Section No. 7—Alternate—Plumbing at Proposed Filter Plant.

Section No. 8—Alternate—Heating at Proposed Filter Plant.

Section No. 9—Alternate—Electrical at Proposed Filter Plant.

No bidder may withdraw his bid within 30 days after the date set for the opening thereof. Any bid may be withdrawn prior to the above scheduled time for the opening of bids or authorized postponement thereof.

WILLIAM K. SANFORD, Supervisor
Keis & Holroyd
Consulting Engineers
Troy, New York
June 30, 1951

OFFICIAL PROPOSALS

Bids: July 26, 1951

8 M.G.D. Sewage Treatment Plant and Pumping Station

Sealed bids will be received by the Board of Supervisors of Fairfax County, Virginia, at the Office of Sanitary Engineer, County of Fairfax, VEPCO Building, Fairfax, Virginia, until 2:00 o'clock, P.M., Eastern Daylight Saving Time, Thursday, July 26, 1951, for the construction of an 8 M.G.D. sewage treatment plant and a pumping station, known as "Contract No. 7", and promptly thereafter they will be publicly opened and read in the Board of Supervisors' Room, County Office Building, Fairfax, Virginia.

The principal units include grit removal, pumping, aeration, settling, chlorination, and sludge heating, digestion, conditioning, dewatering through filters, drying, grinding and storage. The contract is for the complete construction, including general structures, mechanical, electrical, heating and ventilating and plumbing.

Plans, specifications and contract documents may be examined at the Office of Sanitary Engineer, at the offices of various chapters of the Associated General Contractors and various Builders' Exchanges in Charlotte, N. C.; Raleigh, N. C.; Greensboro, N. C.; Columbia, S. C.; Baltimore, Md.; Richmond, Va.; Norfolk, Va.; Washington, D. C., and at the offices of the Dixie Contractor, Atlanta, Ga. Copies thereof may be obtained from Massey Engineers, Consultants, For Building, Fairfax, Virginia, upon deposit of $50.00. Refund of entire deposit will be made in case of actual bidders who return the documents in good condition within two weeks after the bidding date, and refund of 50% of deposit will be made in case of all others who return the documents in good condition within two weeks after bidding date.

Bids must be submitted on the forms supplied for this purpose and in strict accordance with the instructions therefor. Each bidder will be required to show evidence of possession of a certificate of registration as a contractor in the Commonwealth of Virginia before his bid will be considered. Each bid must be accompanied by a bid bond or certified check made payable to the Treasurer of Fairfax County, Virginia, in the amount of at least 5% of the total amount of the bid. The successful bidder will be required to furnish a performance and maintenance bond in a penal sum equal to the full contract price.

The time for completion of the contract will be specified by the bidder and a bonus or penalty, as the case may be, will be applied for each day elapsing between the specified completion date and the actual completion date.

In view of the uncertainties of the cost of labor, material and equipment which may prevail during the life of the contract, and the desire to safeguard the mutual interests of the Owner and Contractor, payments will be made in accordance with the lump sum price bid, plus or minus an adjustment, not to exceed 15%, based upon any changes in ENR CONSTRUCTION Cost Index during the life of the contract.

No bid may be withdrawn for a period of thirty (30) days after the actual opening thereof and the right is reserved to waive any informality therein and to reject any or all bids.

James J. Corbalis, Jr.
Sanitary Engineer, County of Fairfax
Fairfax, Virginia

May 30, 1951

Read the Official Proposal Columns of ENGINEERING NEWS-RECORD This Week and Every Week

SEARCHLIGHT SECTION

This Index is published as a convenience to the readers. Every care is taken to make it accurate, but Searchlight section assumes no responsibility for errors or omissions.

Acchione Contracting Co. 106
Alabama Dry Dock & Shipbuilding Co. 105
Albro Steel Co. 105
Alpha Steel Co. 105

Baker Chemical Co., J. T. 102, 103
Baker, Earl W. 109
Bendix Machinery Co. 106
Brandeis Machinery & Supply Co. 107
Brookfield Construction Co., Inc. 105

Campanella & Cardi Construction Co. 106
Carlin, Inc., R. S. 107
Cerrie, Joseph J. 108
Clark, Murray A. 105
Columbia Machinery & Equipment Co. 106
Commercial Metals Co. 108
Concrete Equipment Co. 106
Crawford, Wm. J. 106

Davidson Pipe Co., Inc. 108
Day & Maddock Co. 105
Defelice & Son, Inc., L. G. 102
Denver & Rio Grande Western Railroad 104
Dougherty Co., A. L. 102

Ehrbar Inc., Edward 105, 108
Emert, W. R. 106

Ferguson Co., H. K. 103
Foster Co., L. B. 107, 108
Frank, M. K. 108
Frazier-Davis Construction Co. 108
Fritz Steel Corp. 107

Gannett, Fleming Corddry & Carpenter, Inc. 103
Greensberg Machine Co. 103, 105, 106
Groves & Sons & Co., S. J. 107, 108
Guion, H. P. 106

Heat & Power Co., Inc. 107
Herlihy Mid-Continent Co. 109
Highway Equipment Co., The 109
Hyman-Michaels Co. 107

Illinois Contractor's Machinery, Inc. 106

Koch Erecting Co., Karl 107

Los Almos Scientific Laboratory 102
Luria Brothers & Co., Inc. 108

Main Inc., Chas. T. 101
Mason Co., Silas 105, 106
McKee & Co., Arthur G. 103
Means, Robert S. 104
Mertes Machinery Co. 109
Midboro Construction Corp. 104
Mississippi Valley Equipment Co. 107

Perkins-Milton Co. 106

Snyder, R. E. 106
Stone Equipment Co. 106, 108
Stone, The Crane Man 108
Strickland Service & Equipment Co., Inc. 106

Tuller Construction Co., The 105, 106, 107, 108, 109

Vilbro Equipment Co., Inc. 105

Wall Rope Works, Inc. 109
White Co., David 104
Wilson Engineering Corp. 104
Wing & Son Corp., R. B. 108
Wylie-Stewart Machinery Co., Inc. ... 106

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Now employed, seeking advancement—American—under 40 years old.

Opportunity for permanent employment in Eastern States.

Salary $300 weekly and expenses.

Reply **P-1305,** Engineering News-Record
330 W. 42 St., New York 18, N. Y.

REPLIES (Box No.): Address to office nearest you
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CHICAGO: 520 N. Michigan Ave. (11)
SAN FRANCISCO: 68 Post St. (4)

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WANTED: BY Missouri State Highway Department, Jefferson City, Missouri, several experienced detailers and designers on reinforced concrete and steel bridges. Permanent position. Give complete details of education and experience.

CIVIL ENGINEER with minimum of 5 years experience in Hydraulics for Stream Control Works Design on several million dollar water supply dam project. State qualifications and salary requirements. Water Bureau, Hartford, Conn.

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ENGINEERS WITH experience in preparation of plans for sewage and water treatment projects or related experience. Location Northwestern Ohio. P-1154, Engineering News-Record.

YOUNG CIVIL engineer, interested in concrete. Send complete information to Scientific Concrete Service Corporation, 724 Salem Avenue, Elizabeth 3, N. J.

STRUCTURAL DESIGNERS and Draftsmen wanted by Baltimore consultant for indeterminate reinforced concrete and steel structures. Good salaries, paid overtime and vacations. State Education, detailed experience, tentative reporting date and salary requirements in first letter. P-1230, Engineering News-Record.

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CLERK WITH typing ability; give details. Write P. O. Box 1074, Roanoke, Va.

ENGINEERS AND Draftsmen—Experienced in Water Works, Sewers, Water and Sewage Treatment, Industrial Buildings, Incinerators. Also Engineers experienced in construction on above types of work. State salary required, give experience and references and state when you can report. Permanent Employment. P-1299, Engineering News-Record.

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Electrical, Mechanical
Structural & Hydraulic

Reinforced Concrete
Designers & Detailers

FOR WORK ON

Industrial Plants
Paper & Textile Mills
Water Supply & Waste Disposal
Steam & Hyroelectric Power Plants
Electrical Transmission & Distribution

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P-1291, Engineering News-Record
330 W. 42 St., New York 18, N. Y.

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POSITIONS WANTED

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(Continued on page 104)

CONSTRUCTION SUPERINTENDENT

Experienced construction superintendent to supervise entire project, construction, erection, machinery installation, 30,000 kilowatt steam generating station. Location—Latin America. Living conditions good. *Availability* next 30-60 days. Estimated construction period 2-3 years. Salary commensurate with experience and qualifications. *Required* recent experience similar projects, business and character references. Reply fullest personal experience record.

P-1309, Engineering News-Record
330 W. 42 St., New York 18, N. Y.

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P-1273, Engineering News-Record
330 W. 42 St., New York 18, N. Y.

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THE LOS ALAMOS SCIENTIFIC LABORATORY

Los Alamos, New Mexico

operated by the

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Atomic Energy Commission

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E. W. Doty, Los Alamos Scientific Laboratory,

Los Alamos, New Mexico

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Write and furnish full information regarding education, training, chronological details of experience, age, salary expected, etc. All replies will be considered strictly confidential.

P-1102, Engineering News-Record
330 W. 42 St., New York 18, N. Y.

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Graduate Mechanical or Civil Engineer with at least 10 years' experience in industrial construction and design work including experience in building with structural steel and reinforced concrete. Age between 35-45 years. Give background and full qualifications in first letter, present salary and salary expected.

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Phillipsburg, New Jersey

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10 shovel OPERATORS
10 mechanics, 8 oilers, 6 greasers, 5 welders
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WAGE RATES good, several months' employment assured for qualified reliable men, guaranteed minimum work week.
OPPORTUNITIES for saving good, excellent living conditions including recreational and medical facilities provided at very low cost to you, transportation furnished. Interesting outdoor sports.
WRITE at once furnishing complete experience record including type of machine operated or project, employer's name and dates of work. Only proven experienced men need apply.

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P-9609, Engineering News-Record
330 W. 42 St., New York 18, N. Y.

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P-9872, Engineering News-Record
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CONSTRUCTION SUPERINTENDENT

Experienced in construction of Open Hearth Plants. Must be a good organizer, able to handle labor and qualified to exercise executive ability. Compensation commensurate with ability of individual.

Write and furnish full information regarding education, training, chronological details of experience, age, salary expected, etc. All replies will be considered strictly confidential.

P-1101, Engineering News-Record
330 W. 42 St., New York 18, N. Y.

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Graduate Electrical Engineer from upper half of class from recognized college. Age between 22-26. No previous experience required. Permanent with chance of advancement. Give full qualifications first letter, also salary expected.

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221 W. 41 St., New York 18, N. Y.

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We are interested in men experienced in Design of Blast Furnaces, Steel Mills, Oil Refineries or similar Heavy Construction Design.

We pay among highest wages in the industry.

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Permanent openings at our Cleveland, Ohio offices.

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Please write and submit complete details as to education, experience, age, salary expected, etc.

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Openings in Ohio and New York offices offering long term employment with good salary for qualified Group Leaders, Designers and Draftsmen experienced in one or more of the following phases of industrial plant design:

Electrical Power, lighting layouts and electrical controls.

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WANTED
BRIDGE DESIGNERS
DESIGNER DRAFTSMEN
RESIDENT HIGHWAY ENGINEERS
Experienced men wanted. State qualifications, age, salary and date available in first letter. Location, Western Pennsylvania.

P-9982, Engineering News-Record
330 W. 42 St., New York 18, N. Y.

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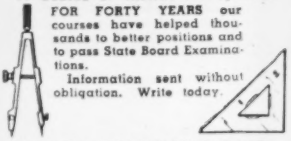

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(Continued from page 101)

POSITIONS WANTED

CONSTRUCTION EXECUTIVE, 50. Capable of managing an entire business. Thoroughly experienced with buildings, machinery installation, process piping and heavy construction projects. Actual superintendent and project manager, background on large jobs. PW-1580, Engineering News-Record.

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SUPERINTENDENT OR General Foreman 28 years experience concrete field Batch, crushing, block, and precast. Placing and handling heavy construction. PW-1109, Engineering News-Record.

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EQUIPMENT SUPERINTENDENT, 50. Over 20 years experience operation and maintenance of heavy equipment. Well experienced heavy rigging, dirt work and underground installations. PW-1242, Engineering News-Record.

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Executive Engineer as Project Manager or Chief Engineer. Proven administrator and organizer. Twenty-five years' experience in design of industrial plants and processes. Registered in several states and previously cleared for both Army and A.E.C. work. Reliable following of qualified design and construction engineers. Prefer West or Southwest location. Require sixty days to complete present assignment.

PW-1216, Engineering News-Record
330 W. 42 St., New York 18, N. Y.

POSITIONS WANTED

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C.E. RETURNING to states July 9, desires position. Experience 3 years municipal, 2 years highway, 1 year hydro. Locate anywhere, good pusher. Non-drinker. PW-1296, Engineering News-Record.

ESTIMATOR ASS'T. Project Manager. Take-off, pricing, purchasing, costs, sub-contracts, expediting. Experienced, energetic, general construction. New York. PW-1272, Engineering News-Record.

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Steel or concrete design.

Design, working drawings and specifications for any type structure. No job too small. Work in Cleveland area preferred. Engineer registered in Ohio. WW-1284, Engineering News-Record.

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1951 (9th) Edition

A 98-page booklet of tabulated construction costs revised as of January 1951. 1600 average spot prices alphabetically arranged and broken down for labor and material, plus 110 explanatory paragraphs. Concise, Comprehensive, *Up-to-date, Handy.* $2.75 Postpaid.

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PHONE:—GEDNEY 6-3382

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Lorain 75B—1¼ yd Shovel
with gas engine. Advise best cash price, condition, location, serial #, in first letter.
W-1275, Engineering News-Record
330 W. 42 St., New York 18, N. Y.

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Phone: Westfield 2-1400

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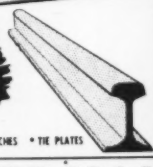

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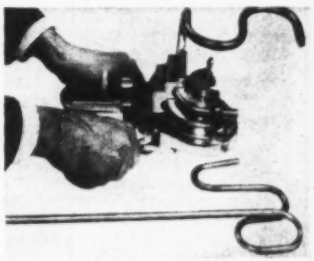

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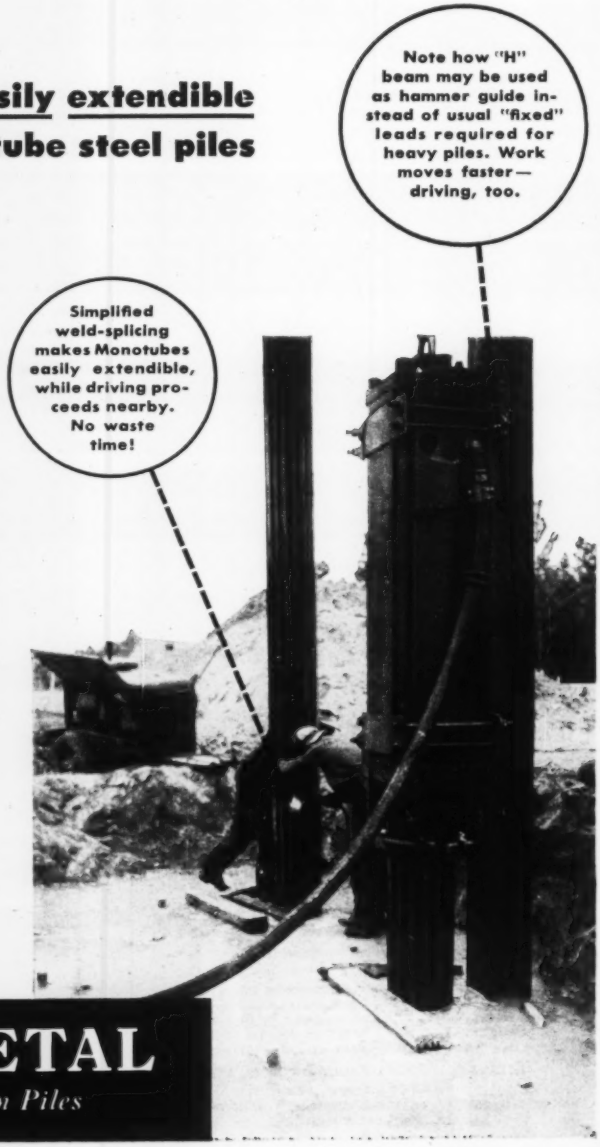
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Heretofore, on architectural structures in particular and for many other applications in general, anodized silicon-bearing welding rods have shown an objectionable dark weld on aluminum work. New EutecRod 22FC for oxy-acetylene and oxy-hydrogen application provides matching base metal, manufacturer claims. Low-melting flux coating flows with minimum heat application, precluding stoppages often occurring when separate flux rod is used. Special flux, right on the alloy prevents metal from running away and allows in-position welding. Available in $\frac{1}{8}$" and $\frac{3}{16}$" dia. DEPT. TIS, EUTECTIC WELDING ALLOYS CORP., 172ND ST. & NORTHERN BLVD., FLUSHING, NEW YORK.

Blacklight leak detector

Certain natural and synthetic materials glow (fluoresce) under rays from carbon arc and mercury lamps. Container or vessel to be tested is filled with dilute oil or water solution of fluorescing agent and its general area darkened. Raymaster Blacklight Exploring Lamp (Model TFS4-B90) emits rays which cause leaking liquid to glow. Battery-powered, it can be used under all conditions without possibility of shock from power lines when in wet or damp areas. Portable rig weighs 12 lb. GEORGE W. GATES & CO., INC., HEMPSTEAD TURNPIKE & LUCILLE AVENUE, FRANKLIN SQ., LONG ISLAND, N. Y.

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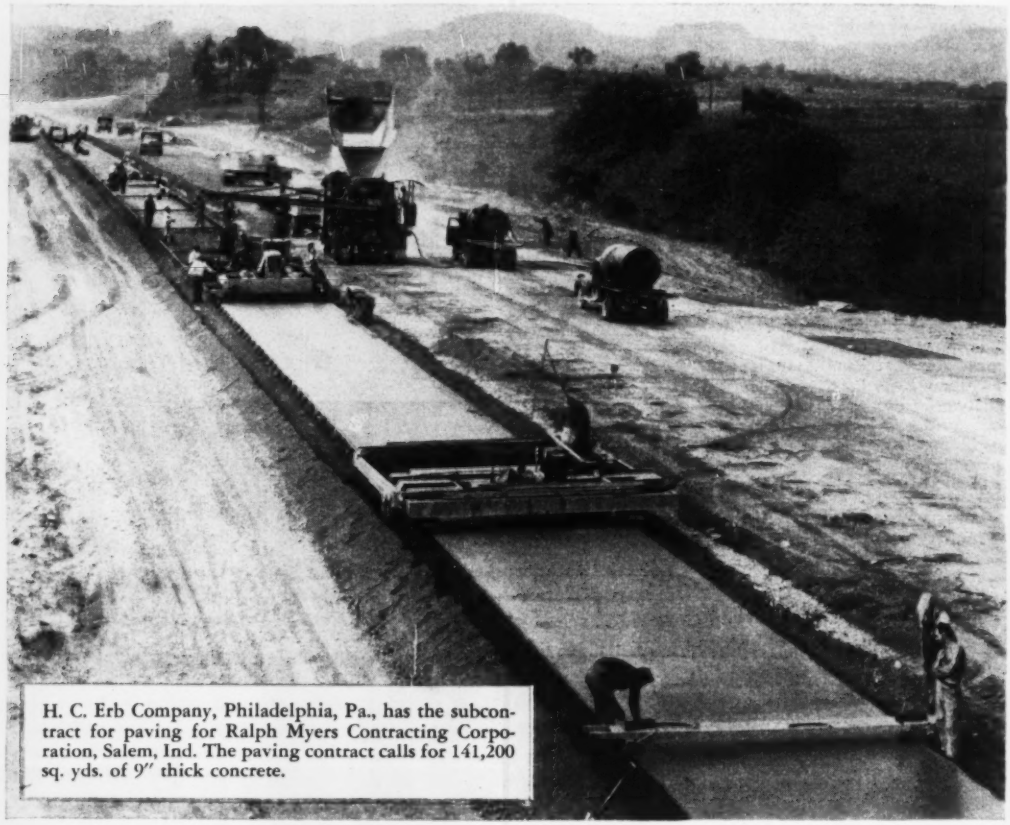

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Non-skid floor compound

Applied with a brush, this rubber base coating is recommended by the makers for stair treads, ramps, garage aprons, platforms, marine decks, and general floor surfaces. Supplied in tile red, light gray, battleship gray, it is claimed to be skid-proof even when wet. The Wilbur & Williams Co., Brighton 35, Mass.

Form clamps

Principle feature of Hex-Lock Clamp is combination of floating nut and bracket as a unit. Maker claims a decided advantage in form tightening with metal-to-metal turning, compared with round washer-like castings which ordinarily are rotated against form face or walers. Williams Form Engineering Corp., 1501 Madison Ave. S. E., Grand Rapids 7, Michigan.

110-v battery charger

Operating on a selenium-rectifier principle this new charger is available for units up to 55 ampere-hour capacity. Automatic controller governs amount and time of charge; also has built-in temperature compensation mechanism for work in cold or warm area. Handles lead-acid or nickel-alkaline batteries while operating from standard 110/115-volt, 60-cycle outlet. Step-down transformer furnished for use with 200-v. Yale & Towne Manufacturing Co., Philadelphia Division, 11000 Roosevelt Blvd., Philadelphia 15, Pa.

Rubber frame goggle

Used separately or fastened temporarily or permanently to respirators, 701 goggle provides gas-tight seal. Recommended specifically for gas, fume and smoke hazards, it can be perfectly fitted and adjusted to prevent infiltration of air. American Optical Co., Southbridge, Mass.

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Manual spring coiler

Torsion, compression, extension and tapered springs, coiled either right or left hand on wire stock from .005 to .125 can be produced readily by new Perkins Precision Spring Coiler. For tapered or conical springs, an outside diameter adjustment knob can be turned gradually as coiling handle is manually operated. Made of cast iron and tool hardened steel, the machine measures 8" x 14". Perkins Machine and Gear Co., Circuit Ave., West Springfield, Mass.

Heavy-duty sander

Improved sander, called Contractor's Special, has heavy-duty 2 hp motor, weighs 241 lb. Interchangeable drum cover can be renewed in three minutes, right on the job. Fan picks up most of dust while nails, sandpaper, and chips are trapped in clean-out chamber. Drum pressure control allows five stages of cutting, minimizing dips and hollows. Porter-Cable Machine Co., Syracuse 8, N. Y.

Running-time recorders

Furnished in wall, portable or flush-panel models, machines record "on" time of production machinery and equipment in magnified reading, "off" time in more compact form. Chart is readable in hours, minutes and seconds. The Bristol Company, Waterbury 20, Conn.

Non-skid grating is designed for use where excessive oil, grease, water, and icy conditions make walking and working hazardous, and where drainage and sanitation are desirable factors. Firm-Grip grating is made by: Bustin Iron Works, Inc., New York 35, N. Y.

MANUFACTURERS' PUBLICATIONS

Diesel engines—Bulletins No. BM 1, 2, 3 and 4 describes Petter air-cooled and water-cooled 4-stroke cycle engines. Manufacturer claims following advantages over American diesels: 10 to 20% less fuel consumption, 30 to 40% cheaper, 85% interchangeability of parts on 1- and 2-cylinder engines. ABOE DIESEL INC., 350 FIFTH AVENUE, NEW YORK 1, N. Y.

Solder—Presents some of the facts about the nature and properties of solder and some of the fundamental principles governing its use and application. Last four pages of 34-page booklet list tables of specifications and technical data. FEDERATED METALS DIVISION, AMERICAN SMELTING AND REFINING CO., 120 BROADWAY, NEW YORK 5, N. Y.

Wire Rope Recommendation Book—Entitled "The Right Rope for the Job", this highly illustrated 40-page booklet is intended as a guide for longer wire rope life and economical operation. Shows proper reeving for work with hoists, cranes, dredges, logging and mining operations; recommends efficient and economical types of wire rope. AMERICAN STEEL & WIRE CO., CLEVELAND 13, OHIO.

Esco Dragline Buckets—Under the title "ESCO Dragline Buckets for Every Digging Condition", catalog No. 188 describes Featherweight, Medium Weight, Heavy Duty (Standard) Extra Heavy Duty and Stripping dragline buckets. Highly illustrated and explained model views fill eight pages. ELECTRIC STEEL FOUNDRY CO., 2141 N.W. 25TH AVENUE, PORTLAND 10, OREGON.

Variable Weight Tandem Roller—Explaining their hydraulic steering, pneumatic-tired towing attachments, spur-gear final drive and constant mesh transmission, this company's catalog describes a new tandem roller which can be increased with weights. Catalog No. 360. THE GALION IRON WORKS & MFG. CO., GALION, OHIO.

Atom Bomb Plant Security—A 32-page illustrated booklet, "How To Prepare Your Plant For Atomic Attack" is an up-to-the-minute, authoritive report on destructive potential and limitations of atomic bombs; a guide to management in organizing personnel. WALTER KIDDE & COMPANY INC., BELLEVILLE 9, NEW JERSEY.

ADVERTISERS IN THIS ISSUE

Acker Drill Co. 87
Aetna Casualty & Surety Co., The 56
Albert Pipe Supply Co. 90
Allied Structural Steel Co. 12
Atlantic Steel Corp. 78
Austin-Western Co. 64

Barber-Greene Company 14, 15
Bethlehem Steel Co. 1
Briggs & Stratton Corp. 118
Buff & Buff Mfg. Co. 91

Cement Gun Company 78
Clark Equip. Co. General Div. 57
Clearprint Paper Co. 48
Cleaver Brooks Company 34
Clipper Mfg. Co. 5
Clyde Iron Works, Inc. 20
Commercial Shearing & Stamping Co. 90
Construction Machinery Co. 81
Continental Motors Corp. 117

Dearborn Chemical Co. 47
Deister Machine Co. 79
Deming Co., The 70

Electric Steel Foundry 113
Euclid Road Machinery 7

Faber-Castell Pencil Co., A. W. 62
Fidelity & Casualty Co. of N. Y. 112
Flexible Road Joint Machine Co. 68
Flexible Steel Lacing Co. 87
Foote Co., Div. Blaw-Knox Co. 95
Ford Motor Co. ..... 4th Cover
Foster Co., L. B. 33

General Electric Company ..... 2nd Cover
Grace Mfg. Co., W. E. 92
Greenlee Tool Co. 46
Gulf Refining Co. 116
Gunite Concrete & Const. Co. 115
Gurley, W. & L. E. 58
Gustin Bacon Mfg. Co. 75

Hayward Company 115
Heltzel Steel Form & Iron Co. 11
Hensley Equipment Co. 81
Hyster Co., The 76

Inland Steel Co. 18
Irvington Form & Tank Corp. 85

Jaeger Machine Co. 72, 73
Johns-Manville Corp. 50, 51
Johnson Co., C. S. 9

Kinnear Mfg. Co. 85
Koehring Co., The 9
Kwik-Mix Co. 9

LaCrosse Trailer Corp. 71

Macomber, Inc. 54
Marlow Pumps 10
McGraw-Hill Book Co. 55
McKiernan-Terry Corp. 86
Minneapolis-Moline 67
Moretrench Corp. 6
Myers & Bros. Co., The F. E. 91

National Tube Co. 69

Open Steel Flooring Institute 59
Owens-Illinois Glass Co. 88

Parsons Co. 8, 9
Phoenix Bridge Co. 91
Pipe Linings, Inc. 3
Pittsburgh-Des Moines Steel Co. 96
Plasteel Products Co. 41
Powder Power Tool Corp. 49

Ramset Fasteners, Inc. 65
Raymond Concrete Pile Co. ..... 3rd Cover
Republic Steel Corp. 53
Robertson Co., H. H. 22
Rockford Clutch Div., Borg-Warner 115

Sauerman Bros., Inc. 96
Schield Bantam Co. 13
Sherman Products, Inc. 89
Sika Chemical Corp. 84
Smith Co., S. Morgan 38
Smith Engineering Works 16
Socony Vacuum Oil Co. 60, 61
Sprague & Henwood, Inc. 85
Standard Steel Works 86
Stone & Webster Engineering Corp. 63

Thew Shovel Co., The 45
Timber Engineering Co. 84
Trailer Village, Inc. 85

Union Metal Mfg. Co. 114
U. S. Rubber Co. 4
U. S. Steel Supply Co. 82

Viber Co. 93

Weyerhaeuser Sales Co. 66
Wild Surveying Instrument Supply Co. of Amer., Inc., Henry 2

Professional Services 109-111

SEARCHLIGHT SECTION

(Classified Advertising)

Employment
Positions Vacant 101, 102, 103
Civil Service 101
Positions Wanted 101, 104
Employment Agencies 101
Employment Services 101

Educational
Books 104
Schools 104

Equipment
(Used or Surplus New)
For Rent 107
Piling 107
Pipe 108
Rail 108
Surveying Instruments 104

Wanted
Equipment 104

ADVERTISERS INDEX 100

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Contractors do some worrying

The setting was nearly perfect. To the north, Whiteface Mountain reared itself against a cloud-flecked sky, its reflection in the gleaming waters of New York's Lake Placid shattered by the wakes of occasional speedboats and the vagaries of a pleasant breeze.

But in a glass-enclosed meeting place—atop a boat-house jutting over the lake's cold waters—an assemblage of contractors had no time for scenery. Attending the sixth mid-year meeting of the Building Industry Employers of New York State—they were spending the morning worrying and wondering.

• **Down to business**—They were worrying, at the moment, about two interlocked matters: Labor and government controls. They were wondering if there was going to be any business—other than defense business, which they feared might pass them by.

It wasn't labor with a capital "L" that the builders were worrying about, but rather what Uncle Sam would permit them to pay and permit them to do with and for their labor.

And as to controls, the contractors were worrying and wondering whether they would be allowed to stay in business long enough to continue to worry about paying labor.

There were a couple of smaller worries too: Jurisdictional disputes; sharp trade practices;—whether it would rain before a scheduled afternoon boat-ride and golf tournament (it did).

They had some outside help on the worrying too. Howard McSpedon, president of New York City's Building Trades Council; Joseph D. Keenan, national AFL Building Trades Department secretary; Peter Eller, himself a former contractor (Thompson-Starrett) and now Chairman of the Board of New York City's Building Trades Employers Association—all sat in to help.

• **One at a time**—The contractors got down to their worrying about labor in good style, following an earnest discussion of compliance with wage restrictions by Arnold A. Rosen, an earnest young lawyer who heads the Wage Stabilization Board's Compliance Division.

Citing the need for avoiding inflation, Mr. Rosen told his hearers of WSB's plans: Regional boards to hear and investigate complaints, stiff penalties for "employer and employee" for violations, insistence on compliance with area agreements and the like (ENR July 5, p. 81).

He finished to a mild round of applause—and then the contractors proceeded to skewer him (with some glee, but no lack of serious intent) on the barbs of their own worries.

What, said one man, should be done if you get a job away from your home area, and want to bring in your own crew? What do you pay your men?

Simple, said Mr. Rosen: You pay them the prevailing wages in the area to which you're moving.

But suppose there is no such prevailing wage?

Answer: You'll have to get one from the Labor Department.

Suppose the Labor Department's rate is lower?

Answer: Pay the lower.

The air went blue with smoke and questions—some directed at the speaker, some at neighbors.

The concensus was that it wouldn't work—you couldn't talk a building mechanic away from his home and job for less money.

And how about government itself? How about government forcing up wages (and thus draining off manpower) through higher pay, longer hours (overtime), generous allowances? That would be stopped, said Mr. Rosen.

The questions and specific (often painfully frank) examples came faster. Mr. Rosen—already sweating gently and retreating behind the fact that decisions must come from higher authority than he—was rescued by BIE President Francis S. Byrne, of Syracuse, presiding.

• **Fresh set**—Mr. Rosen made way (not ungratefully) to big, easy-talking, R. H. "Dick" Cole, longtime Washington representative of the Brick and Tile Manufacturers Association.

Cole brought a newer worry. Controls like M-4, he said, could have serious results: Could conceivably drive the small builder out of business.

The smaller contractor, he told the smaller contractors, just isn't getting proper consideration, and he faces the serious problem of making himself heard or of finding another livelihood. This is particularly true, he added, in areas like New York City, where there is comparatively little defense work, and where work of other types is now dwindling under restrictions.

The trouble is, he said, that with construction apparently booming along at a great rate, it is very difficult to explain to the Congress and to the general public that some elements of the construction industry are in line to be hurt. On paper, it would appear simple for contractors to switch to other lines than commercial buildings—in fact, of course, it is far from a simple thing.

Then he turned to a somewhat unexpected quarter for further comment—he called on Keenan to add his thoughts.

• **Labor takes sides**—Blocky ex-electrician Keenan sided with the employers.

He talked hard and fast—and to the point. Labor, he said, can present a solid front when it talks to Congress or defense authorities, it can voice its concerns or its demands with one voice.

But the smaller elements of the construction industry talk with many voices—and most of them are small.

Why not, said Keenan (to sage nods from Cole and Eller) give labor some backing? Why not organize a group to present this side of the problem, get better public relations—tell the public what it is that makes construction a special case?

And why not use the same group to present the small builders' case to Congress and the defense authorities whose decisions will have great bearing on the future of the industry.

"Labor has a stake in this," he added, "we want to keep our men working."

The contractors liked it—and they rumbled approval for the idea, and for a motion to take the initiative in forming some sort of a national group (ENR June 28, p. 17).

• **Everybody happy**—The meeting broke up on that note.

The contractors seemed happy with their morning's worrying. And they had another day of meetings in which to consider materials shortages, Controlled Materials Plans, legal phases, and a lot of other matters.

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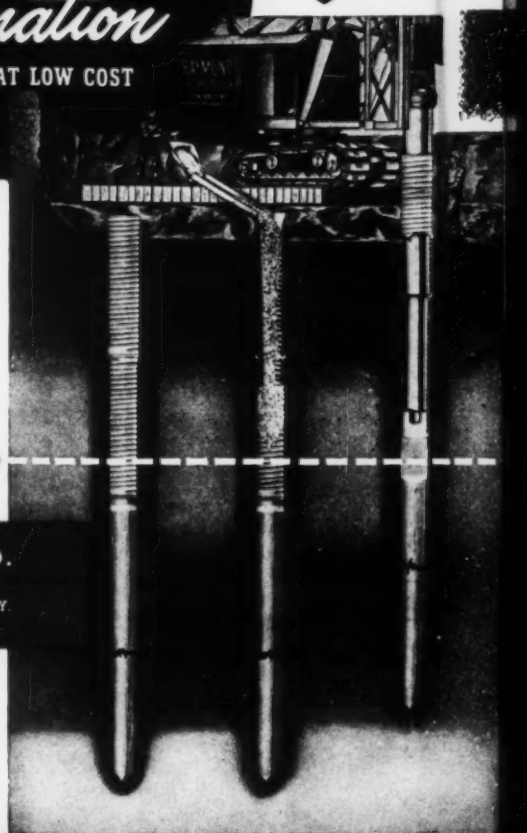

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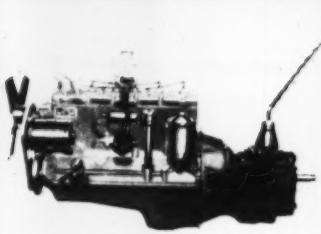

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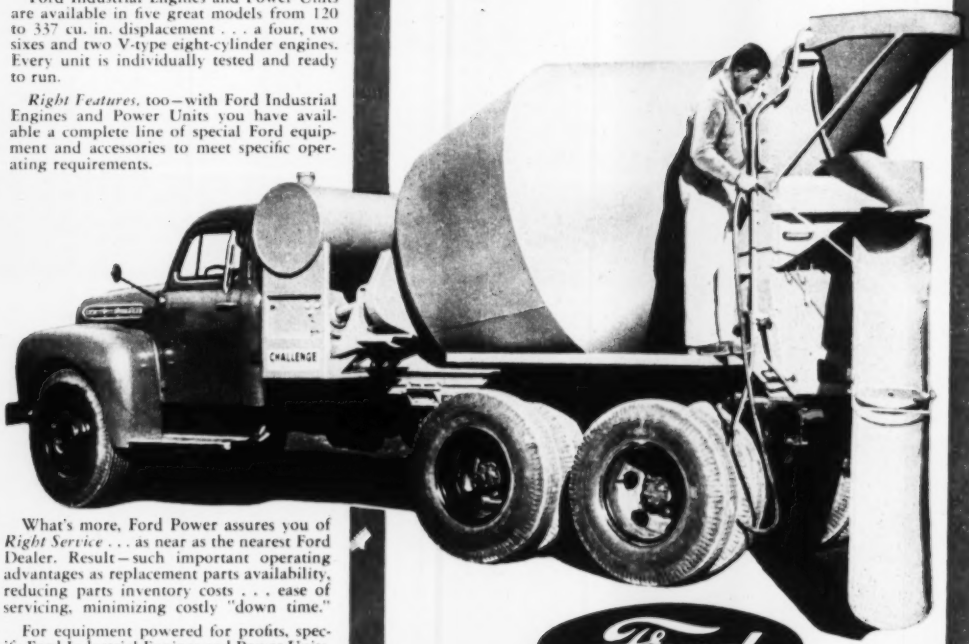

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